Zanzibar Protectorate

Biennial Report of the Department of Agriculture for the years 1961 and 1962

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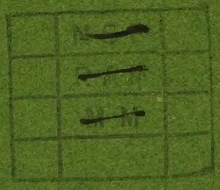

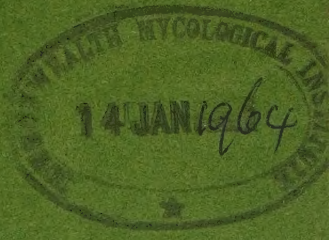

ZANZIBAR

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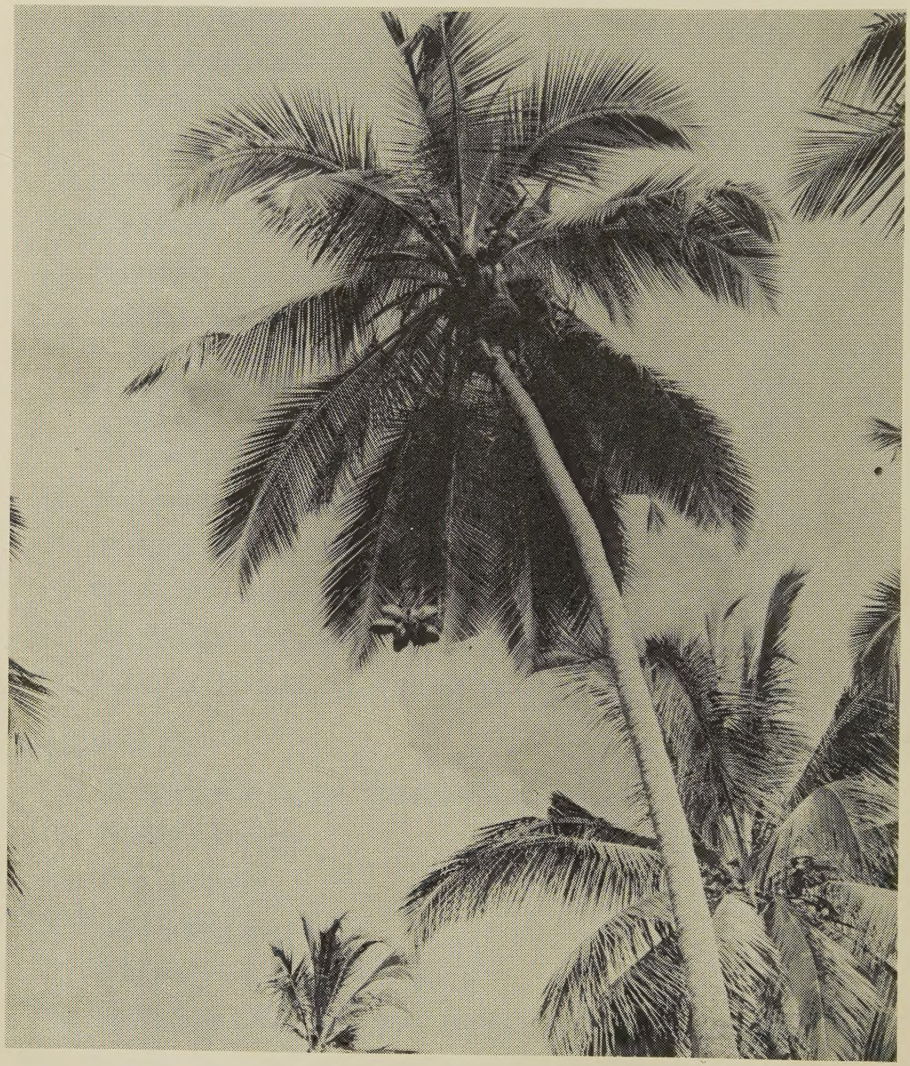


Harvesting coconuts. The palms yield coconuts, copra, oil, cake, coir fibre and manufactured fibre articles for export, as well as food and other products for home use.

Biennial Report of the Department of Agriculture, 1961 and 1962

PART I.—INTRODUCTION

Main Events and Policy

Publication of the 1961 Annual Report was withheld for economy reasons. To preserve continuity a single report is now presented for the two years 1961 and 1962. In the interests of economy it has been somewhat shortened though maintaining in general the customary format of recent years.

2. The year 1961 will be remembered for setbacks in the fields of human relations and economics and for a minor natural disaster in the shape of unseasonable and exceptionally heavy rains which fell at the end of the year. It is true that these latter were not so serious as in other parts of East Africa, but they so reduced the 1961/62 rice plantings that unfavourable growing weather later in 1962 found growers with little in reserve with the result that food shortages and, more particularly, shortages of seed and planting material, had become serious by the end of 1962.

3. The disturbances that occurred following the election in June, 1961, not unnaturally had an adverse effect on many aspects of agricultural development. The staff of the Department are to be congratulated on the manner in which they conducted themselves during those difficult times and on their determination and success in returning to normal relationships will all sections of the farming community as rapidly as possible. Throughout 1962 there has been a constant improvement, but there has been a regrettable legacy of lack of confidence amongst certain farmers which has not yet been entirely dissipated and has retarded development. Plantation owners have been further discouraged by an apparent increase in praedial larceny, resulting from a variety of causes, both social and economic.

4. The two main clove consuming countries, Indonesia and India, purchased in 1961 only a small proportion of their normal requirements, owing to foreign exchange difficulties. This was particularly disappointing after the signs of improvement that had been manifested in 1960. The situation deteriorated still further in 1962, by which time the quota restrictions in India had reduced that country's purchases from Zanzibar to less than one-third the normal figure, while financial instability and lack of foreign exchange in Indonesia led to a cessation of buying by that country in the middle of 1962. In spite of compensatory trading into Singapore, purchases by the Far East as a whole amounted to less than half normal in 1962.

5. Coconut producers were also badly bit by a slump in the prices of whole coconuts, copra and coir fibre during 1961. The former two showed some recovery during 1962 but prices for coir fibre remained at a low figure, which was only marginally economic. In consequence a number of coir factories reduced production or closed down. In spite of the relatively unattractive state of the copra market—or perhaps because of it—there was a considerable improvement in the quality of copra exports, the proportion of FMS to FM increasing markedly. This was largely in response to demand from India, which remained Zanzibar's main market.

6. The depressed state of Zanzibar's two-crop economy has brought home with greater force than ever before the need to diversify the country's agricultural output. The recommendations of the Economic Survey carried out by Mr. P. Selwyn and Mr. T. Y. Watson, C.M.G., in late 1960, were for the most part accepted by the new Government formed in July, 1961. A revised Development Programme was drawn up incorporating many of the recommendations, particularly those relating to an expansion and strengthening of the Department's extension services and of the co-operative movement and the need to provide credit facilities to farmers.

7. In 1962, a number of students were for the first time sent to agricultural institutes in Tanganyika, Uganda and Kenya for training on two-year courses for the posts of Field Assistants and diplomate Field Officers. An Australian scholarship for full professional training and fellowships granted by the Food and Agriculture Organisation of the United Nations were also utilised.

8. The Food and Agriculture Organisation also provided assistance in the form of advisory experts in extension work, fruit canning and processing, irrigation and agricultural credit. The last-named expert is to remain in Zanzibar for two years in order to advise on the setting up and management of an agricultural credit and savings bank, while the others are to submit reports.

9. As an interim measure, pending the formation of the proposed bank, a Board was set up in 1962 to administer funds made available for provision of credit to farmers. Such credit is to be used principally for the cultivation of annual crops by co-operative societies, for the establishment of new tree crops such as cocoa and for the development of planned farms. In addition, loans are made available for approved development of livestock and co-operative ventures such as coir yarn production. To ensure optimum use of the funds available for long-term farm development a Farm Planning Service was set up in 1962.

10. An intensification of extension work was undertaken in 1962. The Department's Quarterly Bulletin, an English-language review which had been issued for many years, ceased publication as an economy measure, but a Swahili-language monthly journal was published in its place. This has become very popular amongst the farming community and has done much to improve contacts and understanding between the farmers and the Department.

11. A Crop Production Programme was published in 1962. This stated Government's policy and the Department's recommendations with regard to the production and marketing of all crops of importance, whether for export or local consumption, and included livestock production and fishing. The Programme sets out the demand for each product, the targets it is hoped to achieve, the marketing services which will be provided, recommendations on the agronomic aspects of production and the services which will be provided to assist in this development. In effect, the Programme reflects Government's policy for Agriculture, which may be summarised as:—

> "The conservation and efficient utilisation of the country's Natural Resources."

The principal objectives to be aimed at, in furtherance of this policy, are as follows:—

(1) Diversification of the agricultural economy with a view to escaping from the present enforced reliance upon two crops only, namely cloves and coconuts.

(2) Increased food production, leading to comparative self-sufficiency, with a view to reducing the present large imports of foodstuffs and thus conserving finance for development purposes.

In a small, densely settled country such as Zanzibar, these objectives are to be achieved by the following measures:—

(*a*) Careful land-use planning, aiming at the development of land in accordance with its economic potential.

(*b*) The adoption of practices which will give a high output per unit of land.

(*c*) The development and intensification of livestock husbandry, including poultry.

(*d*) The controlled exploitation of the resources of the adjacent seas.

(*e*) The conservation and intensified development of the natural and artificial forest resources.

(*f*) Education of the public in the need for these objectives and of the present and potential producers in the means of attaining them.

12. Livestock development made some progress, particularly during 1962, when a co-operative ranching project finally got under way and greater interest was shown in health measures and milk production in certain areas. This advance was stimulated by the prospect of obtaining loans. Significant advances in poultry keeping were made, particularly in Young Farmers' Clubs and similar organised groups.

13. Fisheries development took a major step forward with the formation of a company by the Zanzibar Government and a commercial fishing concern at the end of 1962. This enterprise is intended not only to provide export revenue on its own account but also to assist local fishermen in the disposal of their increasing catches and to introduce them to modern methods hitherto unknown to them.

14. Forestry work continued as planned some three years ago, except that planting of less favourable areas was abandoned. Meanwhile, new species were introduced for trial and a new five-year development plan was prepared, extending the current plan but with a slightly different emphasis. New legislation for control of the mangrove forests was drafted.

15. Labour began to organise more thoroughly than in the past. The majority of the Department's daily paid employees joined a single union and the previous channel of communication through the Departmental Labour Council was broken. Two short-lived stoppages amongst the Department's employees and one at the Copra Board's factory occurred during 1961, while a 19-day strike, involving all the major employing departments of Government, occurred in 1962.

16. It is a pleasure to record that the Department's permanent staff, at all levels, have worked with the utmost keenness and vigour. This has been particularly noticeable during 1962 when an increase in the pace of development and the initiation of many new projects have placed greater burdens upon a small staff. It is unfortunate that the sight of the Agricultural Department staff working late in the day has discouraged recruitment, particularly at the higher levels. Such young men probably do not realise that few of our staff would wish to change their profession, despite the hard work involved, for they know that it is man's work and vitally necessary in a developing country like Zanzibar.

PART II.—AGRICULTURE IN THE TERRITORY

1. Weather

17. During the first six months of 1961 rainfall was considerably less than usual, but exceptionally heavy rains fell in July, which is normally a dry month, exceeding in many places the rainfall for April and May, the months of the main rains. The rainfall in July was the highest ever recorded for that month. In October, the customary second rains began about a month early, and continued with exceptional intensity until the end of the year. There was considerable flooding in the lower areas, preventing the preparation of the land for rice growing. Root crops were damaged and had to be harvested prematurely, while the cutting and burning of the bush in the coral areas in preparation for the planting of maize and legumes was greatly hindered by the continuous rain. A number of rainfall stations recorded over 100 inches of rain during the year.

18. Rainfall during the first half of 1962 was generally a little below average, but two or three heavy falls occurred in April, when a precipitation of 10 inches in 24 hours was recorded. During the remainder of the year the weather became drier. The mid-season *mchoo* rains of August/September and the second rains of November failed almost completely over wide areas of both Zanzibar and Pemba, with the result that as in 1961, but for the opposite reason, the planting of food crops in the second half of the year was must less than usual. In Pemba, total rainfall for the year, at 57 inches, was some 20 inches below average. Zanzibar, however, was less seriously affected. For detailed rainfall records see Appendix VIII.

2. Principal Crops

CLOVES (*see* Appendices I and II)

19. The clove crop for the 1960/61 season amounted to 6,392 tons of which 87 per cent. was the produce of Pemba. The crop was thus slightly more than one-third the crop of the previous year which exceeded 18,000 tons. The Clove Growers Association was called upon to purchase 989 tons at its floor price of Shs. 80 per 100 lb. for standard grade in Zanzibar, the average local market price for the season being Shs. 88.49 per 100 lb.

20. For the 1961/62 season the Association's prices in Zanzibar were raised to Shs. 100, Shs. 90 and Shs. 85 per 100 lb. for special, standard and distillation quality cloves respectively. In Pemba, prices were Shs. 4 lower

for each grade. The early pickings were gathered in good condition but the heavy rains of October and November, 1961, caused considerable damage to the late crop. The damaged cloves were brought at Shs. 60 per 100 lb. for distillation. The Clove Growers Association perfected a hot-air drier which successfully produced high-quality cloves. Some growers used copra-kilns with fair success while others tried drying under polythene sheeting, which was less successful. Total arrivals during the season amounted to 13,176 tons, of which the Association purchased 11,653 tons.

21. The Association's buying prices remained unchanged for the 1962/63 season. The crop was small—estimated at some 5,000 tons—and the local market showed some strength during the early months, prices reaching Shs. 120 per 100 lb. for a short period.

22. The system by which exporters were required to purchase one-half of their exports from the Association remained in force during 1961 and 1962, during which time the Association's selling prices were Shs. 250, Shs. 240 and Shs. 225 for special, standard and distillation quality respectively.

23. Clove exports continued at a very satisfactory rate during the first five months of 1961, averaging 1,000 tons a month. Thus total exports for the 1960/61 seasonal year amounted to 13,832 tons, a figure which is well above average. However, Indonesia then withdrew from the market and exports fell to a rate of 439 tons per month. Total exports for 1961 amounted to 8,319 tons (4,000 tons to Indonesia). In the calendar year 1962 exports fell to 7,726 tons, the lowest figure for the last ten years.

24. Export duty was fixed at Shs. 65 per 100 lb. from 1st October, 1961, and this rate continued in force throughout 1962.

25. The Clove Growers Association remained the sole buyer of clove stems, for distillation, purchasing 1,151 tons in 1961 and 2,087 tons in 1962. The buying price was Shs. 16.50 per 100 lb. for standard quality during both years. Some 158 tons of oil were exported in 1961 and 120 tons in 1962.

26. During 1961 the Clove Growers Association concluded an agreement with Madagascar aimed at the establishment of a certain degree of control in the clove industry of the two countries, and the development of world sales.

COCONUTS (*see* Appendix II)

27. During 1961 the local price for coconuts continued the trend of the previous year, falling to the low figure of Shs. 80 per 1,000 nuts, unhusked. Prices improved slightly in 1962 but were never attractive. The reduced local market price was in part a reflection of a reduced overseas demand for East African coconuts, following the re-entry of Ceylon into the market. Exports fell from 7.81 million nuts in 1960 to 6.07 million in 1961 and to 5.07 million in 1962.

28. Copra prices continued to fall during 1961, reaching a low point of Shs. 31 per 100 lb. in October. Thereafter there was some improvement, and prices were reasonably steady during 1962 at about Shs. 40 per 100 lb. for F.M.S. quality copra with F.M. quality some Shs. 5 lower. India continued to be the principal importer of Zanzibar copra. With her imports

regulated by quota, she has shown an increasing interest in F.M.S. quality and this has been matched by improvements in production to the extent where more F.M.S. than F.M. is now shipped to India. The level of exports during 1961 and 1962 remained steady, at a figure about one-sixth greater than the average of recent years.

29. Coconut oil production continued at the somewhat restricted level of recent years, with 2,490 tons exported in 1961 and 2,537 tons in 1962. Almost all was sold to the East African mainland, as has been the custom for some years.

30. Exports of coconut products for the two years are shown in the following table, where they are compared, as copra equivalent, with those of previous years.

	Exports		*Copra Equivalent*			
	1962	*1961*	*1962*	*1961*	*1960*	*1955-59 Av.*
	tons	*tons*	*tons*	*tons*	*tons*	*tons*
Copra	7,596	7,389	7,596	7,389	4,508	6,437
Coconut oil	2,537	2,490	4,229	4,150	4,452	5,496
Coconut cake ..	2,373	2,081	1,703*	1,480*	1,838*	1,850*
Coconuts	3,123	3,681	724	853	1,116	631
			14,252	13,872	11,914	14,414

*Additional amount not included under oil.

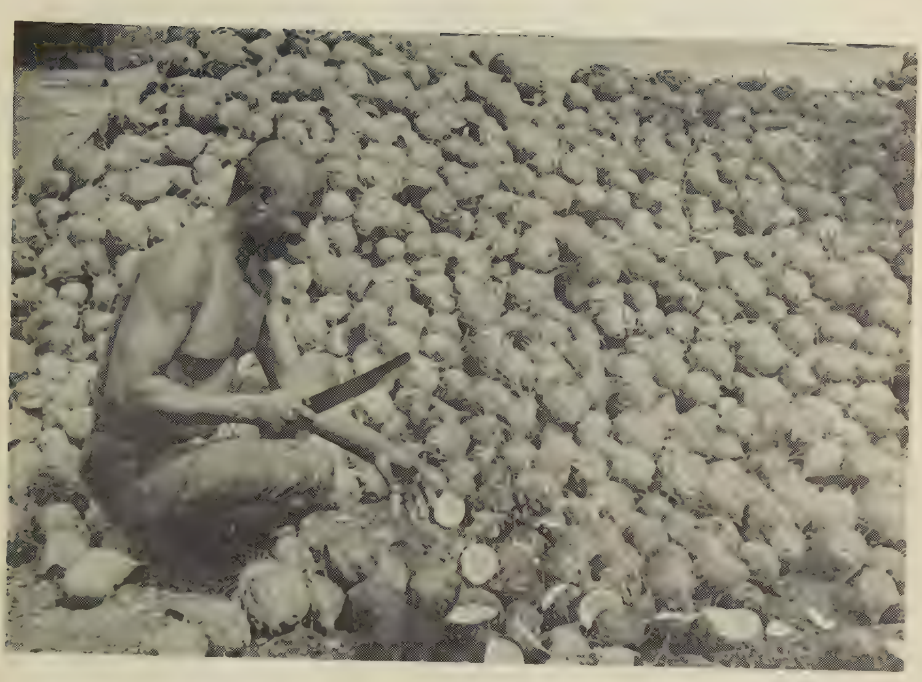
31. Coir fibre production, which has expanded rapidly in recent years, was severely hit by a sharp fall in prices. From a high point of some £54 a ton c.i.f. Europe in 1960 prices dropped steadily to about £30 a ton in 1961 and remained at that level throughout 1962. At this price a number of factories found production to be uneconomic and either reduced production to a minimum or closed down. Thus in spite of the fact that the erection of two new factories was completed in 1961, exports of mattress fibre fell from 5,909 tons in 1960 to 4,891 tons in 1961 and to 4,164 tons in 1962. This represented a fall in value from £200,000 in 1960 to £100,000 in 1962.

32. In contrast to this the Copra Board and co-operative societies expanded production of coir net bags, replacing bags previously imported from Ceylon. In all, 16,153 bags were marketed in 1961 and 39,276 bags in 1962.

3. Minor Export Crops

(*See* Appendix II)

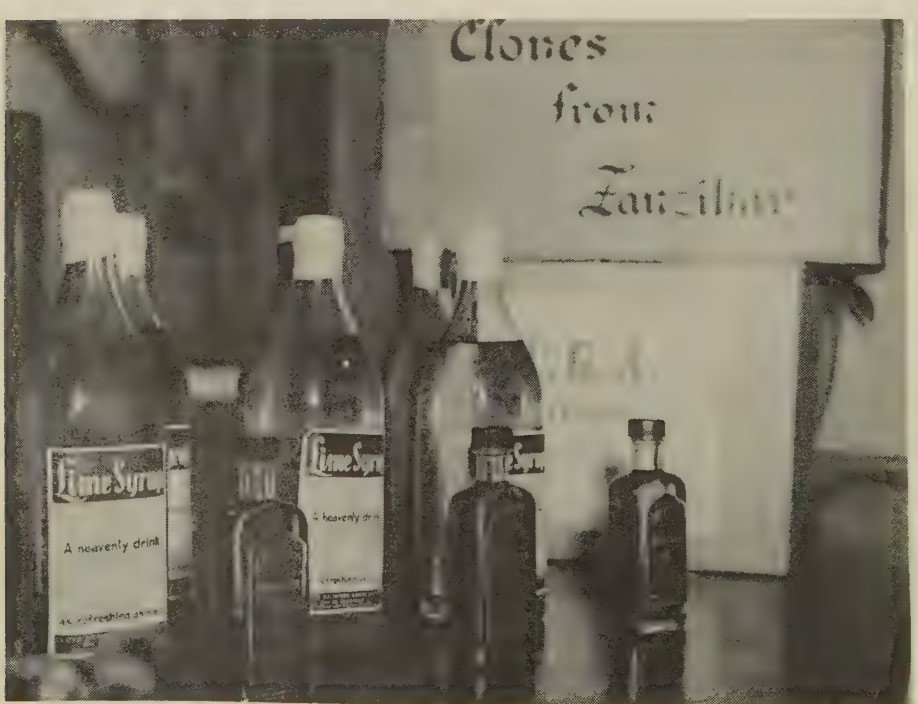
33. The local market price for chillies in Zanzibar town, which had exceeded Shs. 225 per 100 lb. in 1960 and thus encouraged planting, fell to between Shs. 100 and Shs. 125 in 1961 and remained at this level during 1962. In Pemba, prices fell as low as Shs. 60 per 100 lb., with few buyers operating, and the Clove Growers Association accordingly offered facilities. Total exports rose from 63 tons in 1960 to 128 tons in 1961 and 131 tons in 1962.



Splitting coconuts

A copra kiln before firing. The half nuts will be turned to face downwards.

Partly dried copra before removal from the shell, prepared on a kiln fired by coconut shells.



Lime syrup produced in Zanzibar.

34. A considerable lime crop was obtained during 1961 and the Clove Growers Association purchased 198 tons, at 20 cts. a lb. for standard quality and 6 cts. a lb. for inferior limes —usually over-ripe. In 1962, however, there was only a small crop due to the heavy rains of November, 1961, and the Association's purchases amounted to 24 tons only. In 1961, the Association produced 1,368 lb. of lime oil, 1,017 gallons of racked juice and 2,898 bottles of cordial, syrup and racked juice. Some 660 gallons of the racked juice and 1,404 lb. of oil were exported. In 1962, exports amounted to 63 lb. of oil and 206 gallons of juice.

35. No tobacco was exported during 1961 and exports in 1962 amounted to 6,904 lb. No derris was exported during 1961 and 1962. The latter crop is not now being grown and no encouragement is being given to the former.

36. The seaweed market improved during 1961 and remained firm in 1962. Exports totalled 164 tons and 235 tons in the two years, respectively.

37. The severe decline in the general level of incomes in Pemba during 1962, coupled with some improvement in world market prices for mangrove bark, once again made it economic to produce this article, and some 208 tons were culled and exported in 1962.

38. Other commodities, the production and export of which have increased over the two years, include burnt lime and charcoal. Exports of these amounted to 3,470 tons and 2½ tons respectively in 1962.

4. Food Crop Production

(*See* Appendix III)

39. For the third year in succession a substantial increase in the rice acreage in both islands was attained in 1961. Coupled with an average yield of 1,612 lb. dry paddy per acre in Pemba, this area produced its largest crop for the past ten years. In Zanzibar, however, yields fell for a variety of reasons, including dry weather. The 1962 rice acreages, on the other hand, were greatly reduced, owing to the prolonged flooding of the rice areas which prevented growers from preparing the land in their normal manner until two months later than usual. Cultivation by tractor was also impossible until more than half way through the season. The late planting and a subsequent lack of good rains resulted in low yields and a crop that was the smallest for many years. In consequence, there was a general shortage of seed for the 1963 crop, but steps were taken to provide the growers' needs. Comparative acreages and crop production in recent years are shown in the following table:—

	Acreage		
Year	*Pemba*	*Zanzibar*	*Total*
1962	9,478	2,172	11,650
1961	14,912	11,061	25,973
1960	11,690	9,612	21,302
1959	10,958	6,573	17,531

	Clean Rice (tons)		
Year	*Pemba*	*Zanzibar*	*Total*
1962	4,020	534	4,554
1961	6,509	3,591	10,100
1960	4,522	3,908	8,430
1959	5,150	1,712	6,862

40. Plantings of the other grain crops—maize, sorghum and bulrush millet—and of the root crops and legumes were normal in 1961, except that the heavy rain at the end of the year delayed preparation of the coral areas. The Department provided considerable quantities of cassava cuttings and sweet potato vines in Zanzibar island and organised the re-distribution of available planting material in Pemba. Food crop prices in the local markets were generally higher than in 1960, but the premature harvesting of cassava necessitated by the floods brought prices of cassava to a low level.

41. In 1962, on the other hand, the weather was generally unfavourable at all the main planting and growing periods. The first crops of maize and sorghum were light, and plantings of sweet potatoes and cassava that were undertaken from the middle of the year grew poorly or even failed completely in some of the eastern areas. By December, therefore, there was a real shortage of staple foods such as rice and cassava and of the September planted legumes. With the lack of ready money experienced in Pemba, hardship was felt in a number of cases. The price of fresh cassava rose to Shs. 18 per bag, while eggs, a luxury food, were on sale at six for one shilling.

42. The Department of Agriculture obtained and distributed some 11 tons of rice seed, of which 5 tons were purchased from Tanganyika, and organised the collection and distribution of as much cassava planting material as could be obtained.

5. Animal Industry

(*See* Appendix IV)

43. Cattle and goats remained free from serious infectious disease throughout 1961, but foot and mouth disease outbreaks occurred on three occasions in 1962. The first, in January, began in the quarantine and was also noted in the eastern and southern environs of Zanzibar town. It was unidentified for type. An outbreak of Type A occurred at Walezo in May and continued until August. Finally, Type O broke out at Walezo in November and spread to neighbouring areas within the town boundaries. This outbreak was still smouldering at the end of the year. On each occasion movement of stock was restricted but animals were not slaughtered.

44. Tick-borne diseases continued to cause heavy losses and increased in severity with the unusually wet weather of 1961. Spraying increased, particularly in northern Zanzibar, but dipping continued to meet with very limited acceptance. However, the fact that at one centre in Pemba (Ole) private cattle are now being brought regularly for dipping, where none were brought before, shows that progress can be made. Financial assistance for stock-keeping, however, is being limited to those owners who are prepared to dip or spray their stock.

45. Progress was made in the setting up of a ranching co-operative, some of the foundation stock being supplied on loan from the Department's ranches. The organisation of a dairy co-operative, however, continued to make only slow progress.

46. Meat production continued the trend towards greater self-sufficiency which has been very apparent in recent years. In 1961, local bovines for the first time exceeded imported slaughter animals at the Zanzibar town slaughter-house and Pemba was again entirely self-supporting. Indeed, Pemba is now sending considerable numbers of cattle and goats to Zanzibar for slaughter.

47. The numbers slaughtered for meat at the Zanzibar town abattoir and in the townships and rural areas of Pemba are shown in the following tables (oxen include bulls):—

Slaughter Stock, Zanzibar Town Abattoir

	Oxen	*Cows*	*Calves*	*Goats*	*Sheep*
1962					
Local	1,256	657	591	2,796	—
Imported	1,566	—	—	8,446	979
Total ..	2,822	657	591	11,242	979
1961					
Local	1,308	732	518	2,831	—
Imported	1,488	7	7	9,333	1,170
Total ..	2,796	739	525	12,164	1,170
1960 Total	3,066	426	419	13,819	1,043

48. Importations of slaughter cattle were mainly from Tanganyika, a handful only coming from Somalia. The importation of slaughter goats from Somalia has also declined progressively over the past four years, from 4,596 in 1959 to 847 in 1962. To some extent this reflects increasing economic hardship, but the number of local goats slaughtered remained fairly constant.

Stock Imports

	1962	*1961*	*1960*	*1959*	*1958*	*1957*
Cattle	1,472	1,579	1,737	2,246	3,148	4,862
Goats	7,846	8,843	9,592	11,025	10,932	12,339
Sheep	712	825	689	1,035	1,198	1,319

49. The arrangements for the preparation of hides and skins, by suspension drying, in Zanzibar town under the supervision of the Department and in Pemba by the butchers themselves, remained unchanged. The numbers of hides and skins dealt with at the Zanzibar shed were as follows:—

	Hides		*Skins*	
	1962	*1961*	*1962*	*1961*
From abattoir	4,067	4,059	12,021	13,203
From rural areas	561	499	1,763	1,923
Total ..	4,628	4,558	13,784	15,126
1960 Total	4,611		17,133	
1959 Total	4,010		17,191	

50. Poultry keepers showed an increasing awareness of the need for careful management and disease control. This has been emphasised by an outbreak of Newcastle disease in 1961, following which, 4,847 fowls were inoculated against the disease in 1961 and 9,459 in 1962, at a charge of 15 cts. per inoculation. Imports of poultry, mostly day-old chicks from Kenya, totalled 4,370 birds in 1961 and 4,557 in 1962. Poultry keepers formed themselves into an association in 1962. The members are mainly Indian and European keepers of small commercial flocks, close to Zanzibar town. Nevertheless there has been sound progress in the building up of improved flocks by groups of villagers, formed and operating under the aegis of the Department.

PART III.—THE WORK OF THE DEPARTMENT

1. Staff

51. The approved establishment of the Department remained largely unchanged during 1961 and 1962 but an expansion is to be hoped for in 1963 and subsequent years, when pupils and staff now undergoing training in accordance with the recommendations of the Selwyn/Watson report will become available.

52. Three vacancies in the senior staff—Government Chemist, Forester and Assistant Agricultural Officer—arose in 1961 and remained unfilled. The post of Entomologist was also not filled.

53. Mr. A. K. Briant, C.B.E., who joined the Department in 1938 and served for ten years as Director, retired in 1961 and was replaced by Mr. M. F. H. Selby. On the reconstitution of the Government following the elections of June, 1961, the Director was appointed Permanent Secretary for Agriculture in addition to his other post. Other losses during 1961 included Mr. Jago (Government Chemist), Mr. Downing (Forester) and Dr. Wheeler (Colonial Pool Pathologist), who left on completion of their contracts, Mr. Hyde-Wyatt, who had been lent by the Tropical Pesticides Research Unit, and Mr. Othman Shariff (Assistant Agricultural Officer), who resigned to enter the political field. Mr. Bryant (Forest Officer) completed his contract and left at the end of 1962; Mr. Clarke of the Mechanical Cultivation Scheme also left in 1962.

54. Mr. Tahir Adnan and Mr. Jabir Uki returned in 1961 from courses of study in the United Kingdom and were appointed Forest Officer and Forester respectively. A Fisheries Assistant was appointed—the first appointment to this post. Two members of the staff were promoted to the Field Officer Grade in 1962.

55. A Field Officer of local domicile commenced a course of study at Cambridge in 1961, in training for the post of Agricultural Officer. Government scholarships continued to provide for one student at Makerere studying for an agricultural degree, one at Edinburgh studying veterinary medicine, and one at the Royal College, Nairobi, studying natural sciences with a view to becoming an entomologist. Four men continued studying agriculture or veterinary medicine privately in India. A Government of Australia scholarship was taken up in 1962 for a degree course in chemistry.

56. In 1962, three students commenced a diploma course in Agriculture at Egerton College, Kenya, four entered the Field Assistant's course at Tengeru, Tanganyika, and four the Field Assistant's course at Bukalasa, Uganda. One of these latter was later promoted to the diploma course at Bukalasa.

57. The Food and Agriculture Organisation of the United Nations provided fellowships for a Veterinary Assistant in dairying and for the Fisheries Assistant to study aspects of fisheries development, both in India.

58. A refresher course of two weeks duration was given to all field staff in 1962. Attention was focussed on current agricultural knowledge and practice applicable in Zanzibar, on marketing facilities and on extension techniques.

2. The Development Programme

59. The scheme for the investigation of withertip disease of limes ceased in 1961 with the departure of Dr. B. E. J. Wheeler, Plant Pathologist of the Colonial Pool. Work under the Insect Research Scheme—for the control of the coconut pest, *Pseudotheraptus wayi*—also ceased. Other schemes which were in operation in 1960 continued unchanged.

60. In 1962, the overall development plan was recast to take account of the Selwyn/Watson recommendations by removing the scheme for a Production Council, which had not been brought into operation, and introducing the following new schemes:—

(*a*) *Agricultural Bank.* £125,600, to set up a bank to provide credit to farmers and others. An F.A.O. expert arrived at the end of 1962 to help establish the bank. Meanwhile, a temporary Board was set up to disburse the funds available for loans and this body commenced operations at the end of 1962.

(*b*) *Extension and Training.* £39,800, to provide for the training of Field Officers and Field Assistants at mainland institutes, to set up a farm planning organisation, and to provide for an expansion of the extension services. All aspects were in operation before mid-1962.

(*c*) *Fertilizer Subsidy.* £4,350, to subsidise the cost of fertilizers to be sold at half cost price. Fertilizers were obtained in time for use on the 1962/63 rice crop.

(*d*) *Co-operative Development.* £11,000, to provide for a Co-operative Adviser, two Inspectors and training facilities, etc. The Adviser had not arrived by the end of the year.

(*e*) *Fruit Canning Investigation.* £1,000, to meet miscellaneous local expenses in connection with an investigation by two F.A.O. experts which took place from August to October.

(*f*) *Fisheries Investment.* £20,000, for investment in a new company to be formed in partnership with private interests. An agreement on the company's formation had been concluded by the end of the year, giving Government a controlling interest.

(*g*) *Coir Industry.* £16,870, to provide for staff and other expenses in connection with the development of coir products by village co-operative societies. In operation by mid-1962.

3. Crop Husbandry

61. Investigation work is described briefly in a separate section of this report and in details in the Supplement. Other departmental activities are described in this section.

Cashew

62. In order to stimulate interest in this crop the Clove Growers Association offered to buy up to 5 tons at 20 cts. a pound unshelled from the 1962 crop in Pemba, where a survey revealed some 105,000 trees. The tree owners, however, considered the price to be too low, and left most of the crop unpicked, selling 226 lb. only to the Clove Growers Association. Small quantities of roasted and prepared nuts were sold locally at Sh. 1 per lb.

Cassava

63. The propagation of selected virus-resistant varieties and the free issue of planting material continued at three centres in Zanzibar and one in Pemba.

Chillies

64. The Department continued to produce seedlings for free issue to growers and interest was well maintained in Zanzibar. In Pemba, however, growers were still slow in taking up this most useful crop. Issues were as follows:—

	1962	*1961*	*1960*	*1959*	*1958*
Zanzibar	518,621	470,846	384,400	464,000	184,649
Pemba	37,390	24,100	47,608	—	300
Total ..	556,011	494,946	432,008	464,000	184,949

Citrus

65. The production of budded limes for the Citrus Fruit Industry Scheme continued, and these were issued at the heavily subsidised price of 40 cts. each. Unfavourable weather—particularly the long drought of 1960—resulted in lesser production than planned and all available budded plants were issued. Distribution was as follows:—

	Budded			*Seedlings*	
	1962	*1961*		*1962*	*1961*
Zanzibar	9,564	7,817	..	—	100
Pemba	217	14	..	443	947
Total ..	9,781	7,831	..	443	1,047

66. A few lime growers were persuaded to apply mulch, fertilizers or farmyard manure, but in general the attention given to the lime trees is still inadequate. In consequence nearly 10 acres of limes and other citrus were destroyed by fire in four plantations in 1962.

67. Four half-acre privately owned plots were sprayed by the Department with phenyl mercury nitrate in 1961 to control withertip disease. In 1962, this was increased to 23 acres owned by eight people. The spraying consists of 8 to 10 applications within a month at the peak flowering period of September/October. The spraying was effective in 1962, when there was a substantial flowering and withertip disease was widespread.

CLOVES

68. Following a policy of moving from cloves to other crops, the number of seedlings raised for issue in 1961 and 1962 was greatly reduced. Actual issues, which were intended to be for replacement of deaths in recently planted fields, were as follows:—

	1962	*1961*	*1960*	*1959*
Zanzibar	31,485	49,686	82,292	292,340
Pemba	28,423	21,235	41,073	139,204
Total ..	59,908	70,921	126,365	411,544

69. Trials were continued in connection with the diseases "sudden death" and "slow decline". Both diseases, as also "dieback", continue unabated in private plantations but there is at present no indication that new production is not keeping pace with losses.

COCOA

70. The Department continued to provide facilities and to exert pressure for the extension of cocoa growing, but with the exception of a few individuals, who are mostly in Zanzibar, the response of the landowning public has become increasingly poor. Seedling issues rose in 1961 as compared with 1960 but not to the extent desired and subsequent care of the new plantings was in most cases insufficient. In consequence the target for 1962 distribution was reduced from 300,000 seedlings to 150,000. Even this target, however, was not attained. Actual issues have been as follows:—

	1962	*1961*	*1960*	*Total*
Zanzibar	74,641	61,674	42,719	179,034
Pemba	62,003	86,973	48,996	197,972
Total ..	136,644	148,647	91,715	377,006

Up to the end of 1962 seedlings were issued free. In accordance with the terms of the C. D. and W. Scheme, however, growers were warned that a charge of 5 cts. each would be made in 1963. This has had the effect of reducing applications to about 50,000 seedlings only for 1963 planting.

71. A free spraying service to control leaf-eating insects was provided by the Department and most plants which were reasonably clear of weed growth were sprayed three times in each year. This service is fully effective provided treatment is given in time. Where weed growth has prevented spraying the plants have frequently been destroyed by the insects, mainly rose beetles and the weevil *Systates lepidotus*. At the last counts in 1962, there were 54,520 plants surviving in reasonable condition in Pemba and 90,500 in Zanzibar. Thus mortality has been about 73 per cent. and 50 per cent. respectively. The dry weather in the second half of 1960 and again

in 1962 in Pemba was partly responsible for the heavy death rate, but the main cause has undoubtedly been neglect; in the plantations of four more energetic growers in Zanzibar mortality has been less than 20 per cent. There were some 428 growers in Pemba and 130 in Zanzibar at the end of 1962. The largest plot was over 23 acres and the majority less than 1 acre.

72. Small demonstration plots were maintained by the Department on private land at four sites in Pemba and four in Zanzibar. Planted in 1959 and 1960, they came into bearing in 1961 and 1962 respectively.

73. The Department continued to harvest and prepare the cocoa of private growers, mostly from earlier criollo plantings, the grower receiving the net proceeds after the crop was sold overseas. For the 1960/61 season and the 1961/62 season the crops amounted to 1,077 lb. and 1,698 lb. of dried beans respectively. In the same periods the Department's own production amounted to 1,929 lb. and 2,577 lb. respectively. For the 1962/63 season growers are being paid before overseas sale, on the basis of prices offered by the Clove Growers Association. The total crop available for sale is expected to reach 6 tons.

Coconuts

74. The Copra Board continued to finance the production of coconut seedlings for sale below cost. The price was raised from 10 cts. to 15 cts. each in 1961. There has been increased demand for coconut seedlings in recent years, following the drop in clove prices, and some 272,000 were made available in 1961 and 422,000 in 1962. Financial stringency, however, prevented growers taking their full requirements, particularly in Pemba, and actual issues were as follows:—

	1962	*1961*	*1960*	*1959*
Zanzibar	113,589	112,055	67,937	70,959
Pemba	86,511	132,494	65,783	39,253
Total ..	200,100	244,549	133,720	110,212

75. The Board continued to assist the industry by the provision of two copra inspectors and two kiln builders and by the sale of kiln materials at cost price. Shortage of cash kept the demand for these at a low level but the demonstration kiln in Pemba is having a salutary effect. Sales amounted to 47 sheets of expanded metal in 1961 and 27 in 1962.

76. At its factory, the Board concentrated on the production of yarn and coir net bags, this activity supporting the similar work of co-operative societies in the seaboard villages. The Board's factory manager was actively engaged in assisting the co-operatives with technical advice, and by the construction of the necessary machines, which were supplied as long-term loans by the Board.

The expert who introduced spinning wheels for coir yarn explains the method to a visitor.

Coir products of the Copra Board.

The Minister of Agriculture visits farmers who are members of a co-operative society.

Some of the Field Assistants who attended a refresher course.

COFFEE

77. The Department continued to encourage coffee planting, with a view to meeting internal requirements. Ample supplies of seedlings of *C. liberica* and *C. excelsa* were made available at subsidised prices, 10 cts. each in 1961 and 15 cts. in 1962. However, after a brief upsurge in 1960, interest has tended to decline, and issues of seedlings were as follows:—

	1962	*1961*	*1960*	*1959*
Zanzibar	4,273	17,528	17,090	11,126
Pemba	15,053	25,968	37,699	4,398
Total ..	19,326	43,496	54,789	15,524

4. Crop Investigations

78. The main experimental station, Kizimbani, is situated in the centre of Zanzibar island on a loamy sand. In the north and south of the island, on soil derived from coral, are the minor stations of Mkwajuni and Makunduchi. In Pemba, most work is done at Matangatwani in the north of the island. Some of the investigational work undertaken is described briefly hereunder.

CASSAVA

79. Since 1950, 38 virus-resistant varieties of cassava from Amani have been tested and the field narrowed to five varieties of which 46106/27 and 4763/16 are at present considered to be the best for productivity with palatability. The optimum dressing of farmyard manure, which is highly beneficial, was shown to be 6 tons per acre.

CHILLIES

80. Farmyard manure, fertilizers, and coir dust mulch (the latter on the coral-derived soils) are giving increased yields.

COCOA

81. The main investigations include determination of the response to fertilizers and various spacings, and observations on growth and yield when planted under coconuts and cloves. Superphosphate has given increased yields at Kizimbani. Upper Amazon varieties are showing superiority to forastero varieties introduced in 1896.

COFFEE

82. In comparisons of *C. robusta, C. liberica* and *C. excelsa*, the last-named is giving the greatest yields. Cultural and fertilizer trials indicate good responses to banana trash mulch, farmyard manure and sulphate of ammonia. Single-stem growth, with topping and side pruning, compared favourably with other systems.

GROUNDNUTS

83. Very little groundnuts is grown in Zanzibar, and investigations are being undertaken with a view to remedying this. Farmyard manure and fertilizers have raised yields from 500 lb. to over 1,100 lb. per acre unshelled nuts and reducing the spacing from 12′×12′ to 6′×6′ has had the same effect. Varieties and methods of planting are being tested.

HAY AND SILAGE

84. The possibility of making acceptable hay and silage from kudzu and grasses was successfully investigated at Makunduchi.

MAIZE

85. At Mkwajuni and Makunduchi the application of DDT dust reduced stem-borer damage by 65 per cent. (average) and increased yields by an average of 650 lb. per acre of corn on the cob.

PINEAPPLES

86. The efficacy of a coir fibre dust mulch in increasing yield and fruit size had previously been demonstrated. Current investigations suggest that banana trash mulch may be even more effective.

RICE

87. Variety trials comparing varieties obtained from Trinidad and Sierra Leone continued. A long-term trial testing the effect of fallow crops between annual rice crops continued to show the beneficial effect of manured sweet potatoes and pulses.

SORGHUM

88. DDT dust gave substantial control of stem-borers and increased yield in direct proportion to the degree of control, at Mkwajuni and Makunduchi.

TOBACCO

89. Small scale investigations were continued with Solouk tobacco in the coral areas to ascertain whether leaf of satisfactory size and quality would be produced towards the end of the rotation, since it had previously been found that newly-opened land produced a coarse leaf. Unseasonably heavy rains in 1961 resulted in much *Cercospora* damage and badly cured leaf, while drought in 1962 reduced yields to negligible amounts. These investigations have now ceased.

5. Mechanical Cultivation

90. Rice work under the Colonial Development and Welfare Scheme during the 1960/61 season increased considerably compared with 1959/60 but was nevertheless less than in two earlier seasons. Acreages cultivated were as follows:—

	Ploughed	*Tilled*	*Drilled*	*Fertilized*
Zanzibar	634	372	9	15
Pemba	118	25	—	—
Total ..	752	397	9	15

Harvesting cocoa from 4-year-old trees at Kizimbani Experimental Station.
(*Photo by C. O. I, London*).

Banana leaf mulch greatly improves the growth and yield of liberian coffee.

A rotary slasher cuts undergrowth in a coconut plantation.

A political party organised its members to grow 60 acres of rice in two blocks which were ploughed by the service. The Department also ploughed, cultivated, fertilized and sowed 15 acres of Government land which, after germination, was divided amongst thirty people who repaid the cost of the operations later.

91. Cultivation in coconut and other upland plantations during 1961 increased to 652 acres, all in Zanzibar. This work, however, continued to be particularly unprofitable in most cases, because of the rough conditions in the coconut plantations. In 1962, the acreage worked dropped to 29 acres only.

92. Exceptionally heavy rain towards the end of 1961 delayed tractor cultivation for the 1961/62 rice crop by some two or three months. In consequence, the number of people using the tractors in Zanzibar fell from 530 in the previous season to 98 only and the acreage dealt with—shown hereunder—was greatly reduced.

	Ploughed	*Tilled*	*Drilled*	*Fertilized*
Zanzibar	160	125	15	15
Pemba	174	33	—	—
Total ..	334	158	15	15

93. The 1962/63 rice season started well, with particular interest shown by co-operative societies, which for the first time were enabled to obtain loans for this purpose. "Co-operation", however, did not mean amalgamation of plots and the average size of field ploughed increased only slightly to 1.62 acres in Zanzibar. In Pemba, amalgamation by co-operative societies was more in evidence.

6. Agriculture Extension

94. Personal contact with the farmer continued to be the main basis of extension work by the district staffs and in 1961 the instructorate field staff were given the task of building up specially close contacts with 10 to 20 farmers each. At the end of 1962, however, a process of separating extension work from other district activities—such as the raising of seedlings, and experimental work—was begun and selected members of the field staff were allotted to the officer in charge of village groups.

95. The majority of these village groups, which numbered 13 throughout most of the period, continued to make steady progress, particularly where there was a recognised leader of initiative. Development generally followed the lines of increased cultivation, the use of fertilizers and the introduction or expansion of poultry, cattle or goat keeping. Some of the groups formed themselves into co-operative societies.

96. Young Farmers Clubs, of which there was one only in 1960, numbered four by the end of 1962. They have been formed without financial help and are soundly based and working well, but loan funds will be necessary if the movement is to expand rapidly. The clubs have generally cultivated food crops in order to accumulate some cash and have then introduced poultry keeping.

97. Publicity in the vernacular was increased during 1962 with an expansion in size and numbers of the monthly journal *Mkulima*. Previously cyclostyled for restricted circulation to the village groups, it was in 1962 printed to give 2,000 copies per issue. Weekly press releases and subject leaflets on the principal crops and other matters were also introduced in 1962. The weekly broadcasts continued.

98. An extension office was set up in Zanzibar where farmers could meet the extension officer, obtain leaflets and peruse various agricultural journals.

7. Farm Planning

99. In 1962 a small farm planning section was set up with the purpose of facilitating long-term land development by the rehabilitation of individual farms principally through the planting of tree crops other than cloves, but providing also for the integration of stock. The development is to be made possible by the provision of loans which will not be repaid until the normal cropping age is reached.

100. The relatively high state of development of suitable land, albeit under cloves or coconuts, limits the extent of the planned development that can be undertaken on any individual farm. Accordingly, units of 5 acres have been taken as a basis for developing the more fertile areas. This unit provides for the planting of cocoa, limes, coffee, nutmegs and bananas for mulch, and is estimated to cost £200 to establish over four years. A net income of £100 a year would be expected when the unit is in full bearing. Other units have been devised for the less fertile areas, in which cocoa, nutmegs and coffee are replaced by coconuts and cashew.

101. Shortly after the scheme was announced a very large number of applications for loans were received and by the end of the year 24 applications had been approved in principle. Recipients of the loans are required to mortgage their plantations to the lender.

8. Stock Husbandry

Stock Improvement

102. There were no major changes during 1961 in regard to the Kizimbani dairy herd, where policy continued to be the breeding and selection of local zebus into which Boran blood has been introduced. Continuing this policy in 1962, two further Boran bulls were brought in from Kenya, the first for some years. Twelve home-bred bulls were under test in 1961 and the same number in 1962. A new departure was the introduction of Sahiwal blood through the use of artificial insemination in 1962, when seven cows were inseminated. It is proposed to continue this system for a period so that the two types of animal may be compared side by side.

103. The herd stood at 337 head at the beginning of 1961 and 286 at the end of 1962. Completed lactations numbered 117 in 1962. The culling standard remained at 2,600 gallons during either of the first two lactations, except during a period in 1961 when grazing was much reduced owing to drought. Average milk production, counting all cows in the milking herd,

rose from 4.58 lb. per cow per day in 1960 to 4.99 lb. in 1961 and fell slightly to 4.84 lb. in 1962. The improvement in milk yields attained during the period from 1942 to 1954 has not been maintained and present yields point to the necessity for the introduction of Sahiwal or other higher yielding breeds. Sales of dairy produce totalled £3,742 in 1961 and £2,864 in 1962.

104. Four Kizimbani-bred bulls remained at stud in Pemba until late 1962. Services numbered 87 in 1961 and 99 in 1962. Being old, and not particularly outstanding, they were all disposed of in September/October, when an A.I. service was introduced in Pemba. In Zanzibar a stud bull was maintained at Makunduchi in the south and one also at Nungwi in the extreme north during 1962. Services at Makunduchi numbered 31 in 1961 and 90 in 1962. No records were kept at Nungwi but very full use was made of the bull.

105. Using facilities provided by the Kenya Veterinary Department, the A.I. service which was started in 1959 was resuscitated in 1962 in order to introduce Sahiwal blood into both Government and private herds in the country areas. The response was fair, 137 privately owned cattle as well as 34 Government cattle being inseminated.

Stock Raising (Cattle Ranches)

106. The Department's three cattle ranches, all in Zanzibar, were maintained. To prevent over-stocking the numbers were progressively reduced from 1,688 to 1,550 to 1,502 at the end of 1960, 1961 and 1962 respectively.

107. Management continued unchanged except that the ranches were gradually split into sections by internal fencing. Births numbered 336 in 1961 and 339 in 1962. The calving percentage remained fairly satisfactory, averaging 72.4 per cent. in 1961 and 79.2 per cent. in 1962. Birth weights of calves rose slightly. Adult mortality averaged 3.6 per cent. in 1961 and only 1.7 per cent. in 1962. Trypanosomiasis was kept in check by clearing and prophylaxis (antrycide prosalt, in 1962 at 2-monthly intervals) and the majority of deaths were due to tick-borne diseases. The marked decrease in 1962 was due to the fact that animals showing East Coast fever were at once slaughtered for meat. Calf mortality was also satisfactorily low at 4.0 per cent. in 1961 and 4.8 per cent. in 1962.

108. Nine Boran bulls and 12 Boran heifers were imported from Kenya in 1962. This will be the first attempt to raise pure-bred Borans in Zanzibar.

109. To assist in the establishment of a co-operative cattle ranching venture, nineteen cows were issued on loan and 114 head were sold to the Society. Eleven heifers were issued on loan to an individual farmer.

110. The goat herds stood at 95 at the end of 1962. During the year fifty kids were born and fifteen animals died. The herds are maintaining good health for the most part but are doing little to control bush regeneration at present.

9. Veterinary Activities

111. Apart from its work in connection with animal industry described in Part II, the Veterinary Section of the Department was responsible for the health of the Department's livestock and provided veterinary services for the public at five centres in Pemba and four in Zanzibar, as well as operating a travelling clinic on a regular schedule in Zanzibar. The Section was also responsible for the organisation of spraying and dipping facilities, for the A.I. service and for the operation of the Zanzibar quarantine and undertook a small-scale tsetse investigation and control scheme.

112. East Coast fever was unusually prevalent during 1961 owing to the wet weather; terramycin injectable solution from one particular source gave constantly successful results. Trypanosomiasis again accounted for the majority of the clinical cases treated, totalling 1,141 cattle, 11 goats, 22 donkeys and 2 dogs in 1961, and almost identical numbers in 1962. Tick-borne diseases continued to be widespread. A survey of two of the dairy herds at Mtoni (Zanzibar town), which are mainly grade Friesian and other British breeds, revealed that up to one-quarter of the adult animals were tuberculosis reactors. The number of clinical cases treated in both islands was as follows:—

	Cattle	*Goats Sheep*	*Donkeys*	*Dogs Cats*	*Poultry*	*Others*
1961 Zanzibar ..	2,224	259	193	581	3,545	21
„ Pemba	844	57	9	106	2,943	1
Total ..	3,068	316	202	687	6,488	22
1962 Zanzibar ..	2,835	196	178	538	2,120	41
„ Pemba	1,030	42	23	132	4,254	1
Total ..	3,865	238	201	670	6,374	42

113. Prophylactic treatments given in 1961 included 3,820 doses of antrycide prosalt against trypanosomiasis (1,395 in 1960), and 4,847 vaccine inoculations against Newcastle disease of poultry (298 in 1960). In 1962, the corresponding figures were 3,474 and 9,459. The latter figure illustrates well the increasing awareness among poultry keepers of the value of modern disease control measures.

114. Dipping and spraying services were provided as in former years. Excluding the Department's stock, the average numbers of cattle brought for dipping and spraying at all centres on each occasion (that is, weekly in all cases except spraying in Pemba which was fortnightly up to July, 1962) were as follows:—

	1961		*1962*	
	Dipping	*Spraying*	*Dipping*	*Spraying*
Zanzibar	1,262	1,216 ..	1,243	1,481
Pemba	36	731 ..	73	810
Total ..	1,298	1,947 ..	1,316	2,291

These figures may be set against a total population of privately-owned cattle of about 46,000 head.

The Extension Officer explains the making of compost to farmers on a visit to Kizimbani Experimental Station.

A group of farmers with their new poultry house and flock of Rhode Island Red poultry.

Cattle at the Pangeni ranch. These animals are Boran/Local Zebu crosses. *(Photo by C. O. I. London).*

A gully at the top of the Masingini ridge. This land has been acquired for afforestation. The trees in the foreground are helping to prevent erosion.

115. An area of about 1 square mile of bushland on the western coast of Zanzibar was evaluated for tsetse fly concentration and a block of about 6 acres was experimentally treated with 2½ per cent. dieldrin. A fair measure of control was obtained. The advice of the Tanganyika tsetse control authorities is being sought and it is expected that this work will be a guide towards the best method to be employed for the elimination of tsetse flies at least from the western parts of Zanzibar island.

10. Forestry

116. In conformity with a recommendation of the Selwyn/Watson report, a new statement of forest policy was drawn up, in which greater emphasis is placed upon the need to establish forest resources for timber production. The policy may be stated in general terms as follows:—

(*a*) The conservation of existing forest with especial reference to water conservation, the control of erosion and the maintenance of climatic conditions.

(*b*) The afforestation of certain areas to provide timber and fuel for domestic and industrial purposes.

(*c*) The conservation and controlled exploitation of the mangrove forests in order to ensure domestic supplies of poles and fuel.

117. Apart from the brushland which clothes the coral rag areas, the inland forest resources cover 3,490 acres, of which 2,330 acres are indigenous rain forest, 300 acres are fresh water swamp forest, and 860 acres are pole and fuel plantations. Mangrove forests total some 40,000 acres in extent. In late 1962 a new forestry development plan was drawn up. This visualises the building up of a forest estate of some 4,000 acres and is based on the following main projects:—

(*a*) Afforestation of the Masingini catchment area.

(*b*) Re-afforestation with hardwood species in the Ngezi indigenous forest.

(*c*) Species establishment trials, using mainly introduced hardwoods and some softwoods.

118. Afforestation of the Masingini catchment area continued under the current plan and in 1961 some 38 acres were re-planted and 60 acres newly planted using mainly *Casuarina equisetifolia* and *Eucalyptus camaldulensis*, with *Calophyllum inophyllum* under-planted to some extent. Planting in 1962 amounted to 27 acres. In July of that year a serious fire destroyed 25 acres of the 5-year old *Casuarina* during the labour strike; it had been set deliberately.

119. In Ngezi forest (Pemba), 108 acres of exploited forest was planted in 1961 and 70 acres in 1962, using *Chlorophora excelsa* at 36′×36′, inter-sown in part with *Terminalia catappa*. The concessionnaire removed some 226 tons of logs and sawn strips in 1961 and 148 tons in 1962, mainly of *Antiaris toxicaria* and *Bombax rhodognaphalon*, and including some *Erythrophloeum guineense* and an unidentified species "Msindazi". The timber was shipped to Europe for ply-wood manufacture and flooring.

120. Species introduced in 1961 included the following:—

Tabebuia pentaphylla, Sweitenia macrophylla, Cedrela mexicana, Terminalia ivorensis, T. superba, Cordia alliodora, Maesopsis eminii, Khaya nyasica, Pinus caribaea, P. elliotii and *P. patula.* The first three showed 100 per cent. survival in 1962, and the *Terminalia* over 90 per cent. Most showed better growth than *Chlorophora* in Ngezi and the pines are not unpromising at Masingini.

121. Control of the mangrove forests was maintained as heretofore. The quantities of mangrove poles, in scores, removed under permit were as follows:—

	Nguzo	*Boriti*	*Makom-bamoyo*	*Miamba*	*Mapau*	*Fito*
1961						
Zanzibar	1,592	196	1,008	—	3,725	16,645
Pemba	1,096	1,215	433	749	1,320	10,360
Total ..	2,688	1,411	1,441	749	5,045	27,005
1962						
Zanzibar	1,303	239	2,052	—	3,676	14,920
Pemba	3,295	2,775	269	3,100	4,125	35,813
Total ..	4,598	3,014	2,321	3,100	7,801	50,733

	No. of permits	*Out-turn in tons of 50 cu. ft.*	*Estimated Value in £*
1961			
Zanzibar	800	1,147	3,957
Pemba	282	1,086	3,794
Total ..	1,082	2,233	7,751
1962			
Zanzibar	867	1,085	3,747
Pemba	825	3,181	11,103
Total ..	1,692	4,266	14,850

122. Mangrove bark stripping was permitted in Pemba during 1962, for the first time since the 1939–45 war, mainly with the aim of alleviating economic hardship in the island. Exports of the dried bark amounted to 208 tons, all of which went to the United States of America.

123. Nine delegates who had been attending the British Commonwealth Forestry Conference on the mainland visited Zanzibar to see forestry work in the island.

11. Fisheries

124. The fisheries development scheme continued to provide loans for the purchase of powered fishing boats, inboard and outboard engines and fishing gear. Three 22-foot Danish fishing vessels continued in operation but no new operators came forward. A 10 h.p. diesel engine costing £300 was installed on approval in a privately-owned local sailing craft (mashua) in 1961, and after a period of satisfactory performance was accepted for purchase

by the boat owner. Loans for the purchase of nylon nets were popular but recovery of the loans was difficult in many cases. Over 180 of these nets were in use by the end of 1962, the majority being in Zanzibar where they are used mainly for catching kingfish, tunny and shark. Smaller mesh nets are preferred in Pemba.

125. A private firm continued to export frozen crawfish and crab meat at the rate of about 3,000 lb. a month.

126. At the end of 1962 the Zanzibar Government in association with a commercial fishing concern operating with Mediterranean master fishermen set up a private company, to be known as the Zanzibar Fisheries Development Company Ltd., with the aim of developing purse seine fishing for the pelagic fish of the inshore waters, mainly sardines and tuna. In addition to its own fishing activities, it is the intention that this company will provide facilities for the disposal of surplus fish of suitable types caught by local fishermen by their traditional methods.

12. Miscellaneous Activities

Distribution of Planting Material

127. The production and distribution of planting material of a variety of crops was continued in Pemba and Zanzibar. In 1961, clove and coconut seedlings were sold at 15 cts. each, coffee and lime seedlings at 10 cts., nutmeg seedlings at 50 cts. and most other seedlings at 30 cts. Chillie and cocoa seedlings were issued free. Budded limes were sold at 40 cts. under the Citrus Scheme, while other worked plants were sold at Shs. 2 each. Planting material of cassava and sweet potatoes was issued free, while seed of rice and maize was sold at a moderate price. In 1962, the price of coffee seedlings was raised to 15 cts., the charges for other planting material remaining unchanged. Details of issues are given in Appendix V.

Departmental Farms

128. In addition to Kizimbani Experimental Station, small farms were maintained at two centres in Zanzibar and three in Pemba at which a variety of permanent and annual crops were grown for trial, demonstration and the increase of planting material. Small herds of cattle were maintained at four centres for demonstration of the integration of crops and stock or for the production of manure for use in the nurseries. Eight plots (15 acres) in Zanzibar and four plots (4 acres) in Pemba, on private land, were maintained as demonstrations of the establishment of cocoa, coffee, limes or nutmegs.

Poultry

129. Small demonstration flocks of European breeds were maintained at Weni in Pemba and at Makunduchi and Mkwajuni in Zanzibar. The breeding flock at Kizimbani was disposed of in 1961, and instead day-old cockerel chicks were imported for rearing and subsequent exchange with local cockerels (one for two) in the villages, the latter then being slaughtered.

PROCESSING PLANTS

130. The Department's seven small processing plants situated in the villages dealt with the following quantities of produce belonging to farmers, the charge for paddy hulling being 15 cts. for a pishi (about 4 lb.) and the others in proportion.

	Zanzibar lb.	*Pemba lb.*	*Total lb.*	*Total tons*	*1960 total tons*
1961					
Paddy	32,175	72,620	104,795	46.8	34.7
Millets	82	1,232	1,314	0.6	1.0
Maize	302	115	417	0.2	0.8
Coffee	1,428	1,248	2,676	1.2	2.3
Total ..	33,987	75,215	109,202	48.8	38.8
1962					
Paddy	5,944	57,820	63,764	28.5	
Millets	—	885	885	0.4	
Maize	120	—	120	0.1	
Coffee	—	1,060	1,060	0.5	
Total ..	6,064	59,765	65,829	29.5	

13. Government Plantations

131. Management of the Government Plantations in Zanzibar continued unchanged during 1961 and 1962. The mature—and over-mature—coconut and clove trees were maintained and copra was prepared. Blocks of young clove and coconut trees planted some five to eight years ago were kept in good order. No further development planting of cloves or coconuts was undertaken but gaps in young plantations were filled. Cocoa planting under the Cocoa Development Scheme continued. The citrus groves were maintained and small areas of cassava were planted. A few cattle were kept in connection with a particular trial.

132. In both years the plantations showed an overall financial loss, after taking into account all expenses including salaries of all departmental staff involved. The losses are attributed to three main causes. Firstly, the fall in the price of copra from an average of Shs. 47 per 100 lb. in 1960 to Shs. 37 in 1961 and Shs. 39 in 1962, accompanied by a fall in the price of whole nuts exported overseas; secondly, the smallness of the clove and coconut crops of 1962; and thirdly, an increase in labour costs following decisions to raise the wages of employees serving at day rates of pay and to retain the rates of task work for coconut operatives at levels attained in 1960 when prices were higher, instead of allowing them to fluctuate with the market as is the practice among producers generally. Apart from this third cause of loss, the financial situation of the Government Plantations reflected the difficulties in which plantation owners found themselves during this period.

133. Costs (excluding overheads) and receipts for the principal crops were as follows:—

		1962	*1961*	*1960*	*1959*
		£	£	£	£
Cloves ..	Costs of cultivation	1,305	1,963	1,637	1,475
	Costs of harvesting	131	1,031	23	336
	Revenue	301	2,511	87	978
Coconuts ..	Costs of cultivation	3,204	1,906	1,724	2,286
	Costs of harvesting	2,451	3,085	3,101	2,942
	Revenue	10,210	12,009	16,099	18,920
Cocoa ..	Total costs	2,113	1,981	2,608	1,421
	Revenue	218	147	104	126

Note: For cloves the costs of harvesting and revenue refer to the seasonal year beginning 1st July of the year stated. "Harvesting" includes clove and copra preparation.

The above details for cocoa include all expenditure under the Development Scheme. These are not included in the detailed statements of accounts which are given in Appendix VI.

134. Picking and preparation of the 1961/62 clove crop, which on the trees was greater than average, was greatly hampered by the excessive rains which occurred during the picking season. Copra kilns were converted to the drying of cloves and the Clove Growers Association's hot-air drier was also used, but the loss was nevertheless considerable. The crop during the 1962/63 season was almost negligible. Details are as follows:—

Season	*Green cloves lb.*	*Dry cloves lb.*	*Dry stems lb.*	*Average clove price per cental Shs.*
1962-63	19,702	5,943	1,510	89.75
1961-62	208,730	58,414*	6,394†	84.18
1960-61	6,030	1,959	582	84.28
1959-60	86,350	25,926	6,388	71.48

*Includes 9,250 lb. being the assumed weight as dry cloves of cloves sold green to the C.G.A.
†Weight of stems actually obtained after losses.

135. The fourth gathering of coconuts in 1961 was interrupted by heavy rain, but the nuts were, of course, obtained in 1962. In spite of this, the 1962 crop was the lowest on record. Other plantations in Zanzibar also obtained a small crop in 1962. Harvested nuts were disposed of as follows:—

	1962	*1961*
Made into copra	1,635,694	2,133,906
Sold locally	132,343	157,913
Exported	10,000	18,750
Used for seed	500	1,000
Found rotten	22,166	19,303

Copra production was as follows:—

Year	*Nuts made into copra*	*Copra made tons*	*Nuts per ton of copra*	*Average price of copra Shs./100 lb.*
1962	1,635,694	209	7,753	39.33
1961	2,133,906	277	7,718	36.86
1960	1,969,212	264	7,467	47.12
1959	2,019,604	265	7,612	60.70

136. The plantations fermentary continued to be used for the preparation of all cocoa, whether belonging to Government or private growers. The crop was sold through the Clove Growers Assocation. Production was almost entirely from the mature criollo trees, but the recent forastero plantings showed a first crop in 1961. Harvest results for the season April to March are shown hereunder:—

	*1962/63**	*1961/62*	*1960/61*	*1959/60*
Dried cocoa beans, lb.	3,740	2,955	1,870	1,133
Sale receipts, Shs.	3,740	4,360	2,935	2,075

*Note: 1962/63 figures estimated.

137. Cocoa planting was carried out according to the five-year development plan which envisages the planting of 50 acres on Government Plantations in three years, namely 22 acres in 1961, 14 acres in 1962 and 14 acres in 1963. The 1961 plantings consisted of 1 acre of cuttings at 10′×10′ and 21 acres of local forastero seedlings at 8′×8′. In 1962, 1 acre of cuttings was spaced at 12′×12′ and 13 acres of seedlings at 10′×10′. Of the latter, 1 acre was planted with Upper Amazon seedlings.

138. Harvesting of limes from 8½ acres of budded plants and 2 acres of seedlings took place in every month of the year except December, during 1961, with two peaks of production, in April–May and in July–August. In 1962, however, the crop was very small indeed, the excessively heavy rains of October, 1961, having destroyed the main flowering. In 1961 most of the crop was sold to the Clove Growers Association at 20 cts. per lb. for Grade 1 and 6 cts. for Grade 2. With a change in the standard of grading the proportion of Grade 2 rose from 10 per cent. to 22 per cent. Nevertheless, with the costs of cultivation, harvesting, watchmen and transport amounting to some Shs. 575 per acre, there was a substantial margin of profit. In 1962, the small crop was sold in the town market and to individuals at an average price of about 35 cts. a lb. Records over past years are as follows:—

	1962	*1961*	*1960*	*1959*	*1958*	*1957*
Limes harvested (tons)	0.5	45.8	21.8	7.1	9.7	23.5
Net profit per acre (Shs)	—	1,224	566	—	120	498
Net loss per acre (Shs.)	374	—	—	145	—	—

139. Two small herds of cattle were kept for night paddocking and some day-grazing under coconuts on two different types of soil, for observations of vegetation control and coconut yields. Infestation of a clove plantation by the grass *Imperata cylindrica* was controlled by cleaning and planting kudzu (*Pueraria phaseoloides*) on ridges; this was cheaper and more effective than periodic cultivation by tractor.

140. The plantations section continued to produce compost. In 1961, some 191 tons were sold at Shs. 7.50 per ton and 60 tons were used by the Department. In 1962, the quantities were reduced to 133 tons and 18 tons respectively, partly owing to the restrictions imposed by the presence of foot-and-mouth disease in the area and partly because more vegetable growers are now taking dung from the dairies which are the source of supply for the compost. The project operated at a loss of £179 in 1961 and £73 in 1962, when the price was raised—in July—to Shs. 10 per ton.

141. The incidence of thefts in the plantations increased during the year, particularly during the strike of Government employees. As usual, coconuts were the main target but limes were also stolen. Thefts of the latter accounted for a substantial proportion of the small crop.

14. Chemical Laboratory

142. The Government Chemist left Zanzibar early in 1961. With only three professional and technical staff thereafter available it was inevitable that much of the field work in connection with agricultural problems would be put on one side, but all laboratory commitments involving the public and departments of Government were successfully met.

143. The number of routine samples examined and reported upon were as follows:—

	1962	*1961*	*1960*	*1959*
Agricultural	1,837	2,031	2,179	1,469
Medical and Health	503	363	416	176
Police	425	126	156	140
Miscellaneous Official	23	25	68	27
Private	76	77	46	71
Total ..	2,864	2,622	2,865	1,883

The agricultural samples consisted mainly of coconut oil for export. Under the health category, milk samples numbered 450 and 8 per cent. were found to be below standard, mainly due to added water; all were from milk vendors.

144. The section continued to provide sodium arsenite poison for the destruction of wild pig in the Zanzibar coral areas and also to prepare poisoned bait—using corbaureve—for the destruction of the Indian House Crow in Zanzibar town. This latter work was stopped in 1961, however, following doubts as to its safety. The method had been in operation for six years and when efficiently operated had resulted in the destruction of seventy birds a day, on alternate days. At the end, however, the kill had dropped to twenty birds a day and was having only a small effect on the crow population.

145. Production of ylang ylang oil at the Clove Growers Association—supervised by the Chemical Section—amounted to 49 lb. in 1961 and 34 lb. in 1962, the yields being 1.59 per cent. and 1.72 per cent. respectively.

146. Other special analyses undertaken included determination of the oil content of inferior cloves and the copper content of pastures. Monthly analyses of the grass *Heteropogon contortus,* which is dominant in the ranches, were also undertaken.

147. Fruit canning trials were carried out in the Chemical Laboratory by one of the Food and Agriculture Organisation experts who visited Zanzibar in 1962 to advise on the processing and marketing of local fruits.

15. Produce Inspection

148. The work of the produce inspection section of the Department remained unchanged, consisting of the examination of cloves, clove stems and copra offered for sale locally, and of cloves, coconut oil, copra, chillies and mangrove bark prior to export. The quantities examined under the Adulteration of Produce Decree, at local sale, are given in Appendix VII.

149. The excessively wet weather during the latter part of the 1961 clove season resulted in a high proportion (over 10 per cent.) of failures by the inspectorate, and considerable congestion was caused at the Zanzibar market for a time, following the inescapable rejection of wet cloves brought down from Pemba. In 1962, rejections were also high totalling 11 per cent. in Zanzibar; these were due, not to excess moisture, but to the admixture of extraneous matter, many sellers endeavouring to dispose of low grade cloves from the 1961 and earlier crops in this manner.

150. In these circumstances, with a view to maintaining export standards, a double check was introduced at the export stage, the first, and normal, examination being at bulking and the second at bagging. Only cloves which satisfied both examinations were passed for export. Examination of other crops prior to export proceeded normally. Mangrove bark was exported for the first time for some eighteen years, and was examined in accordance with the legislation to ensure that the proper species were being shipped. Produce examined in Zanzibar prior to export included the following:—

	1962	*1961*
Cloves, bags or bales	126,785	137,805
Cloves, consignments	4,007	2,861
Copra, tons	7,596	7,390
Coconut oil, drums	13,337	13,130
Coconut oil, tins	809	3,238
Chillies, bags	3,830	3,662
Mangrove bark, tons	209	—

16. Phytosanitary Control

151. Phytosanitary control work included the inspection and fumigation of goods likely to harbour *Trogoderma granarium* and the prevention of transfer of plant pests and diseases of all kinds into and out of the territory. All fumigations were undertaken by the London Fumigation Company operating from Dar-es-Salaam. All vessels carrying cargo for Zanzibar were inspected and cargo infested with *Trogoderma* was fumigated with methyl bromide in lighters. Some details are given in the following table:—

	1962	*1961*	*1960*	*1959*
Number of vessels examined	71	96	87	97
Number of vessels infested	30	28	31	26
Percentage number infested	42	29	36	27
Number of infested packages fumigated ..	145,482	66,056	52,236	57,320
Number of fumigation jobs	22	17	19	21

152. *Trogoderma* was found in consignments of rice from Pakistan, Burma and Singapore; in gram dhall from Burma (1961); in spices from India; in dates from Muscat and Basrah; in dried fish from Oman; in Bambara nuts from Portuguese East Africa (one, in 1962) and in rice from Thailand (in 1962). In the last named case the infestation probably took place by cross infestation at Singapore. In the case of dates and dried fish the source of infestation is the second-hand Burma rice gunnies which are used for wrapping.

153. To facilitate the export of certain goods from Zanzibar to the mainland and elsewhere, fumigation is undertaken in the inspection sheds prior to export. In 1961 there were fourteen of these operations, involving 8,840 packages, mostly empty gunnies. In 1962, some 10,780 packages were fumigated in fifteen operations. Fumigation charges levied by the Company averaged Sh. 1.43 per package in the sheds and Sh. 0.92 in the lighters during 1961, and Sh. 1.15 in the sheds and Sh. 0.86 in the lighters during 1962.

154. In addition to the inspection of incoming and outgoing produce, some fifty shops, godowns and mills were inspected each year and sprayed with Malathion or dusted with BHC insecticide where this was found necessary. No infestations of *Trogoderma* were found. BHC powder was made available for sale to produce merchants and some 400 lb. to 500 lb. was purchased annually.

155. In general phytosanitary work, involving the inspection of plants, seeds and vegetative material imported into the Protectorate, 416 plant importation certificates were issued in 1961 and 480 in 1962. Conversely, for plants and seeds being exported, 132 phytosanitary certificates were issued in 1961 and 137 in 1962. For the most part, these regulations were operated smoothly and without hardship to importers, but some difficulty was experienced temporarily in regard to onions, which are imported in large quantities from India and the Middle East, wherein onion smut is known to occur in certain areas.

17. Principal Agricultural Legislation

156. The following is a list of the more important agricultural legislation promulgated during 1961 and 1962:—

Decree No. 3	*A Decree to amend the Clove Decree,* which provides for the export of small parcels of cloves without a licence and of Special Quality cloves when these are not available from the Clove Growers Association, and empowers the Association to control the destination and use of certain qualities of exported cloves.	8.4.61
Legal Notice No. 59	*The Customs Management Decree, Notice,* which provides for the export of timber other than mangrove poles from Pemba ports to mainland ports.	15.6.61
Legal Notice No. 81	*The Agricultural Fires Decree, 1958 (Application) (Amendment) Order, 1961,* which applies the provisions of the Decree to the Southern Mudiria in Zanzibar and the Konde, Chake Chake and Mkoani Mudirias in Pemba, thus covering, with previously scheduled areas, the whole Protectorate.	9.9.61

Legal Notice No. 31	*The Control of Seaweed Decree. The Seaweed (Royalties) (Amendment) Order, 1962,* which increases the royalties payable on seaweed exported from Shs. 50 to Shs. 100 per ton.	29.3.62
Legal Notice No. 41	*The Customs Management Decree, Notice,* which permits the export of charcoal, firewood and sweet potatoes from Pemba under licence from the Export Controller.	7.5.62
Legal Notice No. 104	*The Employment of Children (Restriction) (Amendment) Regulations, 1962,* which sets out the agricultural tasks on which children between the ages of 10 and 12 years may be employed.	16.10.62
Legal Notice No. 107	*The Plant Protection (Exemptions) (Amendment) Order, 1962,* which permits the importation from India of cotton "kalfat" for caulking dhows.	12.11.62
Legal Notice No. 115	*The Woodcutting (Declaration of Reserved Areas) Proclamation, 1962,* which closes to cutting mangrove forests in two areas in Zanzibar and one area in Pemba.	24.11.62

ZANZIBAR,
April, 1963

R. K. TREMLETT,
Acting Director of Agriculture

Appendix I

Approximate Production of Cloves in Frasila of 35 lb. for thirty-five Crop Years

(1st July to 30th June)

(Based on receipts of cloves at the Central Market and C.G.A.)

Season	*Zanzibar Frasila*	*Pemba Frasila*	*Total Frasila*	*Mean crop per season in 5-year periods Frasila*
1927/28	190,370	500,382	690,752	—
1928/29	74,828	125,740	200,568	—
1929/30	318,647	610,296	928,943	—
1930/31	51,796	201,320	253,116	—
1931/32	175,070	760,786	935,856	601,847
1932/33	242,772	244,594	487,366	561,170
1933/34	146,098	781,090	927,188	706,494
1934/35	360,037	503,415	863,452	693,395
1935/36	65,938	232,571	298,509	702,474
1936/37	45,096	351,568	396,664	592,636
1937/38	446,500	909,416	1,355,916	768,346
1938/39	39,879	115,211	155,090	613,926
1939/40	168,041	501,474	669,515	575,139
1940/41	146,323	575,277	721,600	659,757
1941/42	297,578	889,550	1,187,128	817,850
1942/43	40,049	223,691	263,740	599,414
1943/44	263,423	777,218	1,040,641	776,525
1944/45	200,417	459,396	659,813	774,584
1945/46	26,493	161,075	187,568	667,778
1946/47	170,280	924,329	1,094,609	649,074
1947/48	30,914	280,986	311,900	658,906
1948/49	81,700	310,971	392,671	549,312
1949/50	153,888	430,253	584,141	514,178
1950/51	158,588	1,081,786	1,240,374	724,739
1951/52	45,892	290,007	335,899	572,977
1952/43	91,417	82,328	173,745	545,366
1953/54	179,883	1,101,302	1,281,185	723,069
1954/55	97,944	448,927	546,871	715,615
1955/56	139,132	746,093	885,225	644,585
1956/57	117,068	330,437	447,541	666,913
1957/58	220,803	1,327,664	1,548,467	941,858
1958/59	75,288	375,659	450,947	775,810
1959/60	148,427	1,009,767	1,158,194	878,075
1960/61	54,428	354,727	409,155	802,861
1961/62	167,053	788,402	955,455	904,444
Average for 35 Seasons	149,946	537,363	673,016	—

Appendix II

Domestic Exports, 1961

Item	*Unit of quantity*	*Quantity*	*Value* £	*Percentage of total value*
Cloves	ton	8,402	2,413,970	67.93
Clove bud and stem oil	lb.	345,910	122,339	3.44
Copra	ton	7,391	403,362	11.35
Coconuts	cwt.	73,200	91,185	2.57
Coconut oil	"	49,769	210,829	5.93
Oil cake	"	44,023	41,429	1.17
Soap	"	76	179	—
Coir fibre, unmanufactured	ton	4,697	124,562	3.51
Coir fibre, manufactured	"	52	3,544	0.10
Chillies	cwt.	2,572	26,351	0.74
Kapok	"	1	4	—
Tobacco, unmanufactured	lb.	—	—	—
Fruit, fresh	cwt.	3,792	4,769	0.14
Lime juice	imp. gal.	664	171	—
Lime oil	cwt.	13	2,808	0.08
Ox hides	"	764	5,821	0.16
Skins, sheep and goats	"	192	1,255	0.04
Livestock	No.	87	83	—
Forest products	value	—	5,923	0.17
Shells marine	cwt.	15,255	39,004	1.10
Fish, dried or salted	"	83	1,391	0.04
Fish, fresh	"	35	110	—
Beche-de-mer	"	548	5,080	0.14
Seaweed	ton	164	8,863	0.25
Lime	cwt.	37,911	13,048	0.37
Other unclassified natural products	value	—	27,351	0.77
	TOTAL		3,553,431	100.00

Appendix II—contd.

Domestic Exports, 1962

Items	*Unit of quantity*	*Quantity*	*Value*	*Percentage of total value*
			£	
Cloves	ton	7,626	2,079,635	65.37
Clove bud and stem oil	lb.	268,414	98,437	3.10
Copra	ton	7,621	387,710	12.19
Coconuts	cwt.	62,587	73,547	2.31
Coconut oil	"	50,733	212,371	6.68
Oil cake	"	48,459	54,904	1.73
Soap	"	13	40	—
Coir fibre, unmanufactured	ton	4,108	98,609	3.10
Coir fibre, manufactured	"	72	4,539	0.14
Chillies	cwt.	2,647	19,121	0.60
Kapok	"	9	109	—
Tobacco, unmanufactured	lb.	6,904	295	0.01
Fruit, fresh	cwt.	1,659	1,398	0.04
Lime juice	imp. gal.	200	52	—
Lime oil	cwt.	1	126	—
Ox hides	"	398	3,837	0.12
Skins, sheep and goats	"	330	2,618	0.08
Livestock	No.	826	200	0.01
Forest products	value	—	1,495	0.05
Mangrove bark	ton	208	3,965	0.12
Charcoal	cwt.	50	20	—
Shells, marine	"	11,008	40,419	1.27
Fish, dried or salted	"	122	1,695	0.05
Fish, fresh	"	186	5,821	0.18
Beche-de-mer	"	858	8,700	0.27
Seaweed	ton	235	12,172	0.38
Lime	cwt.	69,396	22,048	0.70
Other unclassified natural products	value	—	47,218	1.49
	TOTAL		3,181,101	100.00

Appendix III

Estimated Crop Acreages

Crop	*1962*	*1961*	*1960*	*1959*
Banana	10,000	10,000	10,000	10,000
Bulrush millet	150	250	200	300
Cassava	25,000	35,000	25,000	30,000
Chillies	350	360	250	180
Citrus (excl. limes)	820	820	820	820
Cloves	80,000	80,000	80,000	80,000
Cocoa	400	350	220	80
Coconuts	120,000	120,000	120,000	120,000
Coffee	300	260	200	100
Kapok	50	50	50	50
Legumes	2,000	2,500	2,000	2,500
Limes	500	500	475	450
Maize	2,000	2,500	2,000	2,500
Pineapples	80	80	80	80
Rice	11,650	25,973	21,303	17,546
Sorghum	2,500	2,600	2,000	3,000
Sweet potatoes	4,000	6,000	5,000	6,000
Tobacco	150	200	150	170
Vegetables	30	30	30	30
Yams	200	200	200	200

Appendix IV

Stock Census 1960

	Cattle	*Goats*	*Sheep*	*Donkeys*
Pemba	31,525	4,140	73	415
Zanzibar	16,233	10,057	71	960
TOTAL ..	47,758	14,197	144	1,375

CATTLE:

Pemba mudirias	*Bulls*	*Cows*	*Heifers*	*B. calves*	*H. calves*	*Total*
Konde	752	3,822	1,522	1,434	1,173	8,703
Wete	714	3,556	1,426	1,306	1,018	8,020
Chake Chake	526	4,480	1,985	2,033	1,308	10,332
Mkoani	433	2,016	1,177	704	140	4,470
TOTAL PEMBA ..	2,425	13,874	6,110	5,477	3,639	31,525
Zanzibar mudirias						
Northern	243	1,643	511	471	384	3,252
Magharib	566	3,518	1,331	978	1,065	7,458
Central	494	1,425	528	386	551	3,384
Southern	108	818	326	271	288	1,811
Town	21	173	56	36	42	328
TOTAL ZANZIBAR ..	1,432	7,577	2,752	2,142	2,330	16,233

OTHER STOCK:

Pemba Mudirias	*Goats*	*Sheep*	*Donkeys*	*Poultry*
Konde	1,575	—	153	8,292
Wete	1,219	1	94	13,175
Chake Chake	612	3	99	13,146
Mkoani	734	69	69	5,680
PEMBA TOTAL ..	4,140	73	415	40,293
Zanzibar mudirias				
Northern..	2,758	21	296	
Magharib	2,728	9	323	
Central	2,571	—	266	
Southern	1,270	—	57	
Town	730	41	18	
ZANZIBAR TOTAL ..	10.057	71	960	

Appendix V

Distribution of Planting Material

Trees and Perennials:	*Unit*	*1961*	*1962*
Areca nut (seedlings)	nos.	27	—
Avocado pear (grafted)	"	29	26
Clove (seedlings)	"	70,921	59,908
Cocoa (seedlings)	"	148,643	137,244
Coconut (seedlings)	"	244,724	200,100
Coffee (seedlings)	"	43,496	19,326
Durian (seedlings)	"	32	22
Grapefruit (budded)	"	399	36
Lemon, smooth (budded and seedlings)	"	45	22
Lime (budded)	"	7,529	9,790
Lime (seedlings)	"	1,047	443
Lime, sweet (budded and seedlings)	"	147	193
Litchi (marcotts)	"	19	20
Malay apple (marcotts and seedlings)	"	73	150
Mandarin (budded and seedlings)	"	378	235
Mango (grafted)	"	238	189
Nutmeg (seedlings)	"	1,004	—
Orange (budded)	"	2,486	1,689
Orange, bitter (seedlings)	"	—	56
Pepper (rooted cuttings)	"	85	289
Pomegranate (seedlings)	"	93	22
Pomelo (budded and seedlings)	"	115	55
Rambutan (seedlings)	"	415	374
Sapodilla (seedlings and marcotts)	"	79	75
Star apple (seedlings)	"	25	17
Wax jambu (seedlings and marcotts)	"	17	37
Miscellaneous (seedlings)	"	41	22
Annuals and Biennials:			
Cassava (bundles of sticks)	"	4,600	1,400
Chillies (seedlings)	"	494,946	556,011
Derris (rooted cuttings)	"	2,180	—
Maize (seed)	lb.	—	400
Pineapple (suckers)	nos.	13,475	7,600
Rice (seed)	tons	0.75	11
Sweet potato (bundles of cuttings)	nos.	300	3,400
Yam (rootstocks)	lb.	400	800

Appendix VI

Statement of Revenue and Expenditure of the Government Plantations 1961

REVENUE TO THE NEAREST £

	Kidichi	*Selem*	*Mtoni*	*Chukwani*	*Jendele*	*Total*
	£	£	£	£	£	£
Cloves and stems	1,646	719	36	—	83	2,484
Copra	5,872	1,266	1,788	1,386	—	10,312
Coconuts	914	262	344	177	—	1,697
Leased coconut crops	15	9	145	100	58	327
Miscellaneous	1,107	246	234	21	3	1,611
Leased plantation	—	57	—	—	—	57
Rent of quarters	22	—	6	6	—	34
TOTAL	9,576	2,559	2,553	1,690	144	16,522
Deduct value of produce brought forward from 1960	65	—	300	85	—	450
BALANCE	9,511	2,559	2,253	1,605	144	16,072
Add value of produce carried forward to 1962	299	117	260	173	4	853
TOTAL 1961 REVENUE	9,810	2,676	2,513	1,778	148	16,925

EXPENDITURE TO THE NEAREST £

	Kidichi	*Selem*	*Mtoni*	*Chukwani*	*Jendele*	*Total*
	£	£	£	£	£	£
Personal Emoluments:						
Headquarters staff	1,255	346	325	216	22	2,164
Field staff	1,977	197	460	380	—	3,014
TOTAL PERSONAL EMOLUMENTS	3,232	543	785	596	22	5,178
Other Charges						
Transport and travelling	121	69	29	24	3	246
Materials and tools	68	13	23	7	12	123
Labour	9,026	2,625	2,500	2,303	696	17,150
Repairs to buildings	348	40	128	54	5	575
Fuel and maintenance of vehicles	274	137	69	69	—	549
Hire of tractors	29	104	—	—	—	133
Wages increase, arrears	615	166	122	126	—	1,029
TOTAL	10,481	3,154	2,871	2,583	716	19,805
Deduct forest expenditure	—	—	—	—	391	391
TOTAL OTHER CHARGES	10,481	3,154	2,871	2,583	325	19,414
PERSONAL EMOLUMENTS	3,232	543	785	596	22	5,178
TOTAL EXPENDITURE	13,713	3,697	3,656	3,179	347	24,592
Profit	—	—	—	—	—	—
Loss	3,903	1,021	1,143	1,401	199	7,667

Net Loss ..£7,667

Appendix VI—contd.

Statement of Revenue and Expenditure of the Government Plantations 1962

REVENUE TO THE NEAREST £

	Kidichi	*Selem*	*Mtoni*	*Chukwani*	*Jendele*	*Total*
	£	£	£	£	£	£
Cloves and stems	40	112	—	—	—	152
Copra	5,187	1,287	2,028	1,012	—	9,514
Coconuts	517	38	97	44	—	696
Leased coconut crops	9	13	141	78	44	285
Miscellaneous	224	42	240	23	3	532
Leased plantation	—	57	—	—	—	57
Rent of quarters	20	6	6	4	—	36
TOTAL	5,997	1,555	2,512	1,161	47	11,272
Deduct produce brought forward from 1961 (actual)	137	62	230	172	—	601
BALANCE	5,860	1,493	2,282	989	47	10,671
Add produce carried forward to 1963 (est.)	706	307	—	—	—	1,013
TOTAL 1962 REVENUE	6,566	1,800	2,282	989	47	11,684

EXPENDITURE TO THE NEAREST £

	Kidichi	*Selem*	*Mtoni*	*Chukwani*	*Jendele*	*Total*
	£	£	£	£	£	£
Personal Emoluments:						
Headquarters staff	1,269	309	535	247	6	2,366
Field staff	1,946	318	507	422	—	3,193
TOTAL	3,215	627	1,042	669	6	5,559
Other Charges:						
Transport and travelling	104	57	39	39	—	239
Materials and tools	33	21	9	10	—	73
Labour	8,528	2,370	2,410	2,177	620	16,105
Repairs to buildings	383	169	151	63	—	766
Fuel and maintenance of vehicles	341	234	150	150	—	875
Hire of tractors	5	—	—	—	—	5
TOTAL	9,394	2,851	2,759	2,439	620	18,063
Deduct forest expenditure	—	—	—	—	346	346
TOTAL OTHER CHARGES	9,394	2,851	2,759	2,439	274	17,717
PERSONAL EMOLUMENTS	3,215	627	1,042	669	6	5,559
TOTAL EXPENDITURE	12,609	3,478	3,801	3,108	280	23,276
Profit	—	—	—	—	—	—
Loss	6,043	1,678	1,519	2,119	233	11,592

Appendix VII

Produce Inspected under the Adulteration of Produce Decree

Produce and origin	*Deliveries bags*	*Passed bags*	*Failed bags*		*Percentage of failures*
			Excessive moisture	*Extraneous matter*	
1961					
At Pemba:					
Cloves	281,888	250,751	28,641	2,496	11.0
Clove stems	39,695	38,854	805	36	2.1
Copra	34,350	33,560	280	510	2.3
TOTAL ..	355,933	323,165	29,726	3,042	9.2
At Zanzibar:					
Zanzibar cloves ..	53,604	45,779	5,143	2,682	9.6
Pemba cloves ..	236,601	210,107	26,363	131	11.2
Zanzibar stems ..	7,899	7,899	—	—	—
Pemba stems ..	7,239	7,185	54	—	0.8
Zanzibar copra ..	129,900	124,430	4,393	1,077	4.2
Pemba copra ..	31,845	31,130	662	53	2.3
TOTAL ..	467,088	426,530	36,615	3,943	8.7
TOTAL 1961 ..	823,021	749,695	66,341	6,985	8.9
1962					
At Pemba:					
Cloves	88,142	84,221	2,841	1,080	4.4
Clove stems	65,565	64,973	93	499	0.9
Copra	65,943	63,479	203	2,261	3.7
TOTAL ..	219,650	212,673	3,137	3,840	3.1
At Zanzibar:					
Zanzibar cloves ..	13,912	12,349	128	1,435	11.23
Pemba cloves ..	106,693	103,885	2,731	77	2.63
Zanzibar stems ..	10,095	10,086	—	9	0.09
Pemba stems ..	8,459	8,459	—	—	—
Zanzibar copra ..	136,757	131,283	2,687	2,787	4.00
Pemba copra ..	59,725	58,457	1,268	—	2.11
TOTAL ..	337,641	324,519	6,814	4,308	3.3
TOTAL 1962 ..	557,291	537,192	9,951	8,148	3.2

Monthly and Annual Rainfall for the year 1961

Rainfall in inches

Pemba		*Jan.*	*Feb.*	*March*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Total 1960*	*Total 1961*
Kigomasha	Rainfall	0.07	3.64	1.22	2.63	7.33	4.71	9.71	2.45	10.09	12.81	14.31	1.77	70.74	55.70
	Wet days	3	7	7	11	25	16	26	17	23	23	20	11	189	142
Matangatwani	Rainfall	0.00	5.64	2.79	15.87	8.54	3.99	11.96	1.95	3.47	11.52	26.00	4.65	96.38	61.78
	Wet days	—	9	11	19	22	14	23	15	12	20	24	11	180	102
Wete	Rainfall	4.35	7.05	3.41	14.97	8.58	5.25	9.46	1.62	2.12	10.66	24.32	5.14	96.93	57.13
	Wet days	2	10	9	14	17	9	16	6	5	17	23	7	135	106
Limbani	Rainfall	2.31	9.79	2.41	15.17	8.92	5.86	9.94	1.97	3.25	12.05	25.98	7.83	105.48	65.52
	Wet days	5	15	17	19	23	16	24	11	13	18	24	11	196	154
Ole	Rainfall	1.26	6.49	3.71	11.65	11.17	5.27	9.09	1.57	2.76	12.82	19.54	7.41	92.74	66.30
	Wet days	3	10	11	14	20	14	19	8	11	17	22	11	160	126
Chake Chake	Rainfall	2.81	7.37	5.08	16.65	12.97	4.11	7.53	2.48	2.50	11.91	16.27	7.78	97.46	66.51
	Wet days	5	11	20	19	25	16	23	13	17	23	23	12	207	119
Wesha	Rainfall	1.20	5.41	3.96	18.78	11.41	5.56	11.32	2.90	3.80	12.05	17.90	5.15	99.44	65.73
	Wet days	8	10	19	21	22	14	25	12	16	19	23	10	199	149
Chambani	Rainfall	2.64	8.73	6.09	14.01	13.10	3.35	10.01	2.17	4.40	7.99	20.03	6.01	98.53	72.00
	Wet days	4	12	18	16	21	11	18	3	10	15	21	10	159	114
Mtambile	Rainfall ..	4.32	8.05	11.84	15.18	15.40	5.60	10.46	2.04	4.83	9.91	22.57	5.57	115.77	72.85
	Wet days	10	15	20	22	21	14	21	7	14	22	24	11	201	145
Mkoani	Rainfall	1.81	5.74	2.68	12.49	19.41	4.00	10.31	2.17	4.55	10.47	20.52	4.23	98.38	62.06
	Wet days	4	10	12	15	23	12	21	7	9	16	22	7	158	111

Zanzibar		*Jan.*	*Feb.*	*March*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Total 1961*	*Total 1962*
Mkokotoni	Rainfall	1.64	8.84	4.51	10.62	11.86	4.55	8.84	2.23	3.36	15.84	27.35	16.73	116.37	56.24
	Wet days	5	9	11	15	18	13	19	12	4	16	21	15	158	127
Mkwajuni	Rainfall	1.92	6.22	1.91	13.98	9.53	4.60	6.46	0.88	3.71	18.21	18.36	16.60	102.38	53.90
	Wet days	7	11	11	19	23	10	24	12	19	16	21	15	188	136
Kisongoni	Rainfall	1.91	11.15	4.81	6.43	7.67	2.07	11.16	3.05	3.59	17.36	20.37	13.85	103.42	44.07
	Wet days	4	11	10	14	18	6	19	12	11	15	20	12	152	82
Selem	Rainfall	0.54	8.10	3.63	5.62	7.60	2.18	8.47	1.98	5.70	13.25	17.96	7.95	82.98	39.79
	Wet days	6	14	14	20	16	8	17	6	19	21	22	12	175	121
Kizimbani	Rainfall	1.41	8.19	7.38	12.71	9.92	2.80	16.54	2.22	7.62	13.82	18.74	12.41	113.76	66.95
	Wet days	6	14	14	25	18	7	20	9	22	19	17	13	184	141
Victoria Gardens ..	Rainfall	0.49	7.05	2.06	6.98	5.66	0.88	7.61	0.98	3.44	17.01	15.10	13.97	81.23	52.92
	Wet days	5	15	13	21	14	5	17	7	11	21	20	13	162	115
Kisauni	Rainfall	0.73	11.54	4.88	9.83	6.18	1.22	7.63	1.33	2.21	17.72	17.31	11.39	91.97	56.88
	Wet days	10	17	17	18	18	6	16	7	16	19	20	14	178	127
Mwera	Rainfall	5.02	11.42	5.19	8.32	13.22	3.61	12.60	0.85	3.66	12.99	20.08	10.89	107.85	55.80
	Wet days	9	12	10	13	11	5	12	3	8	16	16	7	122	100
Hanyegwa Mchana ..	Rainfall	0.82	9.16	4.18	11.55	12.24	4.88	15.99	3.59	1.00	8.90	13.48	7.59	93.38	61.19
	Wet days	4	14	8	24	25	11	22	9	10	20	16	12	175	132
Tunguu	Rainfall	0.75	12.73	5.74	15.04	13.25	4.09	14.16	1.72	2.00	12.93	13.27	11.02	106.70	62.31
	Wet days	3	17	12	15	13	5	13	5	6	17	14	10	130	109
Muongoni	Rainfall	1.90	8.82	5.03	10.53	11.97	1.75	9.65	0.97	0.75	8.98	14.36	14.29	89.00	58.17
	Wet days	5	10	13	20	21	18	18	8	11	15	22	14	175	105
Makunduchi	Rainfall	3.92	8.66	3.38	10.70	8.41	5.19	16.05	2.16	0.09	7.70	14.27	11.86	92.39	57.84
	Wet days	7	10	7	18	17	9	25	5	1	15	17	10	141	100

Monthly and Annual Rainfall for the year 1962

Rainfall in inches

Pemba		*Jan.*	*Feb.*	*March*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Total 1962*	*Total 1961*
Kigomasha	Rainfall	3.32	0.07	2.38	9.52	8.46	2.90	2.85	2.93	2.18	6.30	0.12	7.86	48.89	70.74
	Wet days	4	1	10	19	18	10	10	17	8	13	2	9	121	189
Matangatwani	Rainfall	2.12	—	5.19	17.06	10.18	4.45	1.59	1.94	0.69	1.59	2.79	7.01	54.61	96.38
	Wet days	6	—	12	21	15	11	9	14	8	7	11	15	129	180
Wete	Rainfall	2.31	—	8.32	16.35	9.65	3.66	1.82	1.28	0.44	2.37	6.21	11.49	63.90	96.93
	Wet days	4	—	11	19	10	8	3	5	2	8	13	11	94	135
Limbani	Rainfall	4.08	0.06	7.76	17.47	9.44	3.50	2.04	1.76	0.74	0.99	2.84	6.81	57.49	105.48
	Wet days ..	6	2	15	18	12	9	10	13	5	7	14	14	125	196
Ole	Rainfall	5.22	0.25	1.99	15.99	12.99	5.28	1.71	1.31	0.26	0.35	1.20	1.15	47.70	92.74
	Wet days	6	1	8	22	16	8	5	9	3	5	4	8	95	160
Chake Chake	Rainfall	4.46	0.35	3.95	20.95	12.62	2.45	2.00	1.00	0.89	0.06	4.28	7.39	60.40	97.46
	Wet days	7	2	17	25	14	8	6	8	6	2	7	14	116	207
Wesha	Rainfall	2.43	0.45	10.18	17.08	9.59	2.49	1.45	1.46	0.65	0.19	3.17	13.35	62.49	99.44
	Wet days	5	4	17	20	16	9	7	14	8	6	13	18	137	199
Chambani	Rainfall	3.30	1.30	1.28	22.32	11.06	1.43	1.58	2.07	0.43	0.58	3.64	5.80	54.79	98.53
	Wet days	6	2	8	20	13	5	8	13	6	5	8	12	106	159
Mtambile	Rainfall	1.73	0.42	4.27	30.00	11.72	1.70	1.10	1.09	0.68	0.59	5.85	11.12	70.27	115.77
	Wet days	5	3	19	20	14	9	8	6	7	6	10	21	128	201
Mkoani	Rainfall	1.28	0.04	6.94	19.61	9.01	1.40	1.57	1.57	0.83	1.97	2.86	7.26	54.34	98.38
	Wet days	5	1	13	19	13	9	5	7	4	7	11	14	108	158

Zanzibar		*Jan.*	*Feb.*	*March*	*April*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Total 1961*	*Total 1962*
Mkokotoni	Rainfall	3.73	0.1	5.23	20.42	2.35	2.19	1.68	4.32	4.19	1.13	3.38	5.75	54.38	116.37
	Wet days	11	1	9	22	10	6	7	15	14	6	9	11	121	158
Mkwajuni	Rainfall	3.04	1.71	9.08	22.96	2.24	3.92	0.93	3.47	3.11	0.11	0.99	4.87	56.43	102.63
	Wet days	9	6	15	21	12	6	4	14	14	1	4	13	119	188
Kisongoni	Rainfall	1.13	0.72	3.23	15.46	1.72	1.85	1.22	2.24	1.59	0.40	2.90	3.08	35.54	102.88
	Wet days	2	3	8	20	8	5	4	7	6	1	2	7	73	152
Selem	Rainfall	0.93	0.07	18.25	32.69	5.10	1.45	2.72	13.07	1.95	9.94	6.79	15.95	108.91	82.98
	Wet days	8	2	19	21	13	5	6	12	5	12	9	12	124	175
Kizimbani	Rainfall	0.91	0.22	8.13	15.29	3.34	1.29	1.45	4.20	0.94	5.10	3.10	6.76	50.73	113.76
	Wet days	5	3	18	20	9	5	4	13	4	6	9	15	111	86
Victoria Gardens ..	Rainfall	0.97	0.58	2.88	25.05	1.89	1.69	0.44	2.42	1.37	2.71	2.43	8.42	50.85	81.23
	Wet days	8	3	18	20	7	6	4	10	5	8	12	20	121	162
Kisauni	Rainfall	0.76	0.69	3.73	34.31	2.91	2.22	0.51	2.81	1.49	4.00	5.86	9.51	68.80	103.42
	Wet days	9	7	19	20	9	7	7	11	2	8	12	23	134	152
Mwera	Rainfall	1.21	0.77	9.44	16.49	3.51	—	2.46	4.55	—	4.20	19.10	12.85	74.58	107.85
	Wet days	2	2	9	7	3	—	5	9	—	9	17	14	77	122
Hanyegwa Mchana ..	Rainfall	2.61	1.15	7.40	23.42	4.29	2.32	1.25	1.54	1.89	1.15	3.54	5.63	56.19	93.39
	Wet days	7	3	17	23	11	10	7	12	6	2	4	13	115	175
Tunguu	Rainfall	0.96	0.23	10.69	19.85	4.45	1.12	0.87	2.44	0.65	3.43	3.85	8.05	56.59	106.70
	Wet days	2	3	18	14	6	3	3	6	2	4	6	9	76	130
Muongoni	Rainfall	—	3.24	9.63	21.00	6.80	5.62	—	1.65	1.00	—	2.74	8.59	60.27	88.96
	Wet days	—	5	21	20	9	8	—	3	1	—	6	14	87	175
Makunduchi	Rainfall	—	5.55	5.63	28.15	5.79	3.92	—	0.49	1.40	—	0.34	3.24	54.51	90.36
	Wet days	—	4	9	24	8	6	—	2	1	—	2	4	60	141

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